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ABSTRACT

The study provides estimates of the valuations placed on various military non-monetary benefits by Air Force personnel, and explores the relationships between these valuations and personnel retention. Empirical data were obtained using a stratified sample survey approach for 3,698 active duty personnel, which included a large amount of biographical and attitudinal data, as well as the dollar compensation that would be required for reach of 15 non-monetary benefits--if eliminated--to make the respondent feel just as well off as he does now with the benefit. Major conclusions/recommendations include the following: (1) the Air Force should take no action to educate its present personnel in the area of non-monetary benefits--except the retirement benefit--in general (evidence indicates that increased knowledge has a negative effect on non-monetary benefit valuations); (b) the retirement benefits should be stressed and explained in terms of its high "present value" during the first enlistment because of its positive role in personnel retention; and (c) the Air Force should consider providing cash to its present personnel in lieu of non-monetary benefits (benefit allocations are not necessarily the same allocations that would be chosen if Air Force members had cash). (Author)

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THE ATTRACTIVENESS OF AIR FORCE NON-MONETARY BENEFITS

By

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MANPOWER AND PERSONNEL SYSTEMS DIVISION
Lackland Air Force Base, Texas 78236

July 1974

Final Report for Period July 1972 – June 1974

Approved for public release: distribution unlimited.

AIR FORCE HUMAN RESOURCES LABORATORY

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235

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This final report was submitted by Cooper and Company, 19 Third Street, Stamford, Connecticut 06905, under contract F41609-72-C-0051, project 2077 (formerly 6323), with the Air Force Human Resources Laboratory (AFSC), Manpower and Personnel Systems Division, Lackland Air Force Base, Texas 78236. Lt James F. Roach, Manpower and Personnel Systems Division, was the contract monitor.

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The views, conclusions, and recommendations contained within this report do not necessarily represent those of the Air Force. They are published as a matter of record and to provide basic information in the area of non-monetary benefits.

This technical report has been reviewed and is approved.

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Chief, Manpower and Personnel Systems Division

Approved for publication.

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This study provides estimates of the valuations placed on various military non-monetary benefits by Air Force personnel, and explores the relationships between these valuations and personnel retention. Empirical data were obtained using a stratified sample survey approach for 3,698 active duty personnel, which included a large amount of biographical and attitudinal data, as well as the dollar compensation that would be required for each of 15 non-monetary benefits–if eliminated–to make the respondent feel just as well off as he does now with the benefit.

Major conclusions/recommendations derived from this effort include the following: (a) the Air Force should take no action to educate its present personnel in the area of non-monetary benefits–except the retirement benefit–in general (evidence indicates that increased knowledge has a negative effect on non-monetary benefit

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PREFACE

This work was performed under Project 6323, Personnel Management Research and Development; Task 632302; Work Unit 63230212 (presently documented as 20770304), Analysis of the Effectiveness of Non-Monetary Benefits.

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SECTION I

INTRODUCTION

1. STUDY OBJECTIVES

If the Air Force is to be able to function effectively it must obviously be able to attract and retain personnel of adequate quality, in adequate numbers. There are many factors which are thought to impinge upon the ability of the Air Force to attract and retain personnel, and among these are the perceptions of current and prospective Air Force members with regard to the "benefits" they do or will receive, in the Air Force and in competing employments.

Most competing employments are, of course, civilian in nature, and it is widely believed that such employments provide benefits mainly in monetary form. In contrast, Air Force benefits are usually regarded as being relatively heavy in non-monetary form, so that an obvious policy question for the Air Force might be put as follows: What would be the influence on accessions and retentions of changing the form of the benefits provided by the Air Force? Obviously, Air Force non-monetary benefits could be restricted in favor of monetary ones, or vice versa, (without changing the costs incurred by the Air Force), but whether the Air Force would be more or less attractive as a result is not known.

Of course, changes in "non-monetary benefits" may take many forms: for example, health benefits could be changed with or without changing educational benefits, and, for that matter, health benefits themselves could be changed in an enormous number of ways. Moreover, there is no reason to believe that individuals or groups, e.g., married vs. single, or first-term vs. career, would each react in the same way to any specified set of changes in non-monetary benefits. The attractiveness of non-monetary benefits to any given indiviudal can also be expected to depend on his information and/or education regarding the non-monetary benefits.

Thus there is need for the development of much basic information regarding Air Force non-monetary benefits. How attractive is each such benefit? How much variation is there between individuals and between groups? To what extent can attractiveness be influenced by education? What relations exist between enlistment or reenlistment rates, on the one hand, and non-monetary benefits on the other? These are the kinds of questions to which this study is addressed.

2. SCOPE OF THE PROJECT

The general scope of the inquiry, and the general procedures to be employed in achieving the objectives were initially specified by the Air Force. The more important technical features of these specifications can be summed up as follows:

a. The project was to be conducted in three consecutive phases, consisting of a design phase, a data collection phase and an analysis phase.

b. The project was to be so designed and conducted that it would provide

   (1) evaluation of the attractiveness of the various components of non-monetary benefits;

   (2) identification of the key factors which help to account for the differences in evaluations between sub-groups of Air Force personnel;

   (3) analysis of the effectiveness of education in influencing evaluations of attractiveness; and

   (4) evaluation of the influence of estimation procedures on the results achieved.

c. The project was to cover at least the following non-monetary benefits: medical care for the individual and dependents; Commissary, Army and Air Force Exchange Service facilities; base recreational facilities; payment of income tax on only part of total military income; education and training; and base housing.

It is perhaps noteworthy that the specifications which guided the investigators did not identify any particular Air Force policy or decision questions which might be of interest. Had such questions been asked it would, in all likelihood, have had a profound impact on the design and conduct of the study, including even the measures used. For example, the specifications might, in principle, have said: "The Air Force is considering the elimination of base housing, and an analysis will be conducted to show the influence of this potential change on the retention of Air Force personnel." In such an event the project might have been designed to estimate, say, the change in the number of personnel retained because of the contemplated Air Force action, and this measure would not only have been highly pertinent to the decision, but would certainly qualify as a measure of "attractiveness."

As the specifications were actually written, however, the Air Force interest had to be interpreted as being perhaps more general or more fundamental, and geared to the development of information which might be useful in formulating decision alternatives, rather than in evaluating those already known to be of interest. If, for example, 15 distinct non-monetary benefits are identified, it would be possible to describe 33,708 possible Air Force decisions analogous to the illustration regarding base housing, simply by considering the elimination of various combinations of the 15; and each such possibility would require different information to be collected, e.g., via a different question in a questionnaire. Thus the nature of the specifications really precluded any effort to evaluate directly the "effectiveness" of alternative non-monetary benefit policies, while the cost of alternatives were not even remotely related to the specifications.

In summary, then, the aim of the project was to develop fundamental information regarding non-monetary benefits rather than to evaluate specific, Air Force, decision alternatives.

3. SCOPE OF THE REPORT

This report is intended to be as comprehensive as possible, consistent with certain limitations. These limitations are of several kinds, of which perhaps the most important is the desire to keep the report short enough to be read and understood in a few hours. This consideration dictated certain omissions: for example, a description of detailed plans and procedures as these were developed, modified, approved, etc., over the considerable life of the project. Thus, for example, questionnaires utilized in this project underwent several iterations in the course of their development, and these early versions were deemed to be of too little interest to justify inclusion.

Another reason for lack of comprehensiveness in the report is that some matters, though deemed to be potentially significant, cannot be described adequately by the investigators, principally because they lack information. To illustrate: the investigators were not able to observe directly the conditions under which the survey was administered, nor was any other type of record of these conditions obtained. Hence the possibility that the conditions of administration may have introduced an independent source of variability cannot be ruled out.

A final reason for omissions is that some matters now seem to be largely irrelevant, even though, as the project progressed, they appeared to be important. Thus the report does not describe the questionnaires and plans which were developed for administration of a survey to potential Air Force members, (i.e., to certain classes of civilians), simply because, in the end, the survey was confined to current Air Force personnel. (It is, however, important to note that the elimination

of the civilian survey virtually eliminated the possibility of reaching any conclusions about the relations between non-monetary benefits and accessions, as opposed to retentions).

4. ORGANIZATION OF THE REPORT

The general plan of the report is as follows. Section II takes up the important conceptual issues related to the topic "attractiveness of non-monetary benefits;" for example, it is necessary to decide such fundamental matters as what should be meant by "attractiveness," and what "non-monetary benefits" are. Section II also identifies the specific non-monetary benefits to be evaluted. In Section III, Approach, a number of hypotheses, arising from Section II and consideration of the project objectives are first presented. This is followed by a description of the approach employed, including the nature of the survey, the experiments conducted, the questionnaires utilized, the sampling plan followed, and the administrative procedures used. In Section IV, the survey results are presented, covering response rates; general sample characteristics; sampling distributions for non-monetary benefits; the valuation of the total non-monetary benefit "package;" variations in valuations due to objective personal characteristics; variations due to type of questionnaire or type of base; attitudinal responses; miscellaneous, analytical results; and, finally, the results of regression analyses in which the various non-monetary benefit valuations and probability of re-enlistment are, respectively, treated as independent variables to be explained or predicted. Section V begins by presenting the conclusions of the investigators, first taking up the initial hypotheses, then discussing the influence of non-monetary benefits on retentions; and concludes with the presentation of recommendations. The content of questionnaires and tabulations of numerical results are presented in appendix format.

SECTION II

THE ATTRACTIVENESS OF NON-MONETARY BENEFITS

It is central to the achievement of project objectives to determine what is meant, both generally and concretely, by "the attractiveness of non-monetary benefits." In this section the meanings to be given to "benefits," "non-monetary" and "attractiveness" are considered, and the items to be evaluated are identified.

1. BENEFITS

For purposes of the project a "benefit" is defined to be a feature of the Air Force with the following properties:

a. It is judged, by the investigator, to have significant positive—rather than negative—value to most actual and potential Air Force members, and is viewed by them as personal compensation. On this ground, it would be possible to rule out, say, the pleasure of flying which may be experienced by some air crew members.

b. Its desirability is assessed, by the Air Force, primarily in terms of its presumed effects on the feelings of satisfaction or dissatisfaction of actual and potential Air Force members, rather than in terms of other indicators of military effectiveness. Thus the characteristics of equipments, such as safety, cannot be benefits.

c. It must not be an integral part of an effective military force, so that there is a real choice available to the Air Force. Thus, under certain combat conditions, the provision of food may not be a benefit, any more than fuel is a "benefit" ordinarily.

d. It must serve to differentiate the Air Force from most other possible careers, especially civilian careers; otherwise it cannot have a significant influence on career choice. Hence Social Security benefits, for example, are not benefits for purposes of this project.

By the application of these criteria an enormous number of Air Force features can be ruled out as possible benefits: all characteristics of particular Air Force job assignments; all characteristics of particular Air Force equipments; all characteristics of particular Air Force locations; all characteristics shared with most civilian employments, (such as coffee breaks). It is also possible to rule out many specific possibilities, e.g., the right or obligation to wear a uniform (perhaps by any or all of the first three properties). Nevertheless, there is at least one gray area—training—discussed more fully later.

2. NON-MONETARY BENEFITS

"Non-monetary" benefits are defined to be all benefits other than "monetary" benefits. Monetary benefits are defined as payments by the Air Force in the form of money, to, or on behalf of, an active Air Force member, to which he or she is entitled solely by virtue of current or future Air Force service. Monetary benefits thus consist of pay, bonuses and allotments—amounts to which the recipient is absolutely entitled (given good behavior) on a current basis, and which can be determined solely in terms of rank and length of service factors. Thus any payment which is conditional on anything other than the Air Force member's rank, length of service or good behavior is not a monetary benefit even though it may actually be paid in cash.

Applying this criterion it may be seen that the form of payment, does not serve to differentiate monetary and non-monetary benefits. The clothing allowance is a monetary benefit, not because it is paid in cash, but because the amount of entitlement does not depend on Air Force operating decisions or personal choices or luck. On the other hand, the quarters allowance, is not a monetary benefit, even though paid in cash, since payment is conditional upon the quarters provided (or not provided) by the Air Force, and therefore is not a matter of absolute entitlement, known in advance. Much of the retirement benefit is actually in cash, when paid, but it cannot be converted into current cash, cannot be spent, and may not be collected at all. In fact, most non-monetary benefits perhaps involve cash, but it is characteristically uncertain whether, or how much, cash will be paid (or spent on behalf of the individual or his dependents) because of future Air Force decisions and/or future unknown circumstances of the individual.

By virtue of the criterion just discussed it is easy to differentiate between monetary and non-monetary benefits. However, this is very different from saying that it is easy to develop an unequivocal list of non-monetary benefits. For one thing there is no way to be sure that any given list of non-monetary benefits is exhaustive. Perhaps more importantly, any given non-monetary benefit area, such as health care, can be broken down into any number of distinct benefits, e.g., hospital versus outpatient, medical versus dental, dependent versus personal. Within the general framework of non-monetary benefits, then, the development of a concrete list of specific non-monetary benefits is somewhat arbitrary.

3. ATTRACTIVENESS

Many meanings may be attributed to "attractiveness," and the one which is selected must depend on the scope of the project and on what is thought to be technically feasible. Attractiveness may be interpreted as "utility," in the economists' sense, or satisfaction; but, even if this would be useful, it is not considered feasible. Given the interest in

accessions and reenlistments, attractiveness of a non-monetary benefit could also be taken to refer to the effect of the benefit on the numbers of accessions and reenlistments; but this interpretation is beyond the project scope, since it would require deep involvement in many phenomena which are not to be studied, (e.g., a comparison of Air Force and civilian pay levels, for "comparable" skills).

The view of attractiveness adopted here is a compromise between these two ideas. The attractiveness of a non-monetary benefit to an individual is defined as the amount of money he would need to receive to make him indifferent between the money and the non-monetary benefit. This implies that, concretely, each non-monetary benefit must be defined in a fashion which makes it reasonable or feasible to get along without it. Thus, for example, it cannot be very meaningful to say merely that health care is a non-monetary benefit, and then to ask how much money would be required to make the individual feel equally well off in its absence. Obviously the individual must have health care sometimes and to some degree, and what is really being postulated is that, with enough cash, the individual could obtain the desired health care. But the postulate is a reasonable one only on the assumption that actions are taken by the Air Force to make individual arrangements for health care possible in a way which is consistent with its own operations. In short, the cash alternative must not be so defined that it includes modes of operation which are unreasonable either for the individual or for the Air Force.

In principle, given the strict definition of attractiveness, it would be possible to proceed without saying or implying anything about alternatives to existing non-monetary benefits, leaving everyone to make his own judgments about what the world would be like when he has cash instead of a non-monetary benefit. The effect, however, would surely be to introduce a source of variability into the answers which may be so great as to dwarf everything else. Thus, for any non-monetary benefit whose elimination is postulated, it may be desirable to establish something about the nature of a feasible alternative, and to make this alternative known to any individual who must determine how much the benefit is worth to him.

4. THE NON-MONETARY BENEFITS

In order to identify the specific features of the Air Force which might be classified as non-monetary benefits, several devices were employed. First, Air Force manuals, especially AFM 35-16 (L-2), were studied. Second, written Air Force advertising and recruiting information was assembled and considered. Third, the principal characteristics of military and civilian employment, from the standpoint of employee compensation, were identified, to establish significant differences. As a result of these efforts, and the application of the foregoing criteria, several candidate non-monetary benefits were eliminated, and some retained.

The items retained by this process can, in retrospect, be characterized as being, in the aggregate, all benefits, other than current monetary ones, for which a reasonable monetary alternative, dependent only on rendering satisfactory current service, can be devised. However, the choice of specific benefits was based on many complex judgments. It was desirable for each benefit to be of non-negligible value, so that no benefit should be cut up into very many pieces. Further, it was desirable to group together into a single benefit "package" those things which are closely related--consisting, perhaps, of things which are frequently purchased together, or things whose value might tend to depend on the same kinds of information. It was desirable, too, that benefits be differentiated whenever this would facilitate association, with the individual's situation, e.g., marital status. The definition of some benefits had to take account of the need to be sure that the military effectiveness of the Air Force would not be significantly impaired by the hypothetical benefit change. Finally, since the concept of attractiveness adopted was such that measurement could scarcely be attempted without heavy reliance on the questioning of individuals, it was necessary to keep the total number of benefits down.

For purposes of study, the number of non-monetary benefits retained and differentiated was fifteen. The fifteen are listed and briefly described below. It is not proposed, though, that these descriptions would be either apropos or well-known to all Air Force personnel. Within the questionnaires, only the benefits' names were used, not the description. In each case it will later be postulated, for questionnaire purposes, that the benefit is to be eliminated and replaced by cash, implying that the services eliminated will somehow be obtained, if desired, by purchase from the civilian economy. Therefore it is necessary to define the benefit to be evaluated in such a way that elimination and replacement by cash appears reasonable and feasible. Note that it is explicitly assumed that benefits under the G.I. Bill are not affected by any of the changes discussed here; i.e., no aspect of the G.I. Bill is being evaluated.

a. Dependent Health Benefit

This benefit applies to dependents of Air Force members, including spouse and children, and includes:

- medical care and hospitalization, including dental care, at military installations, to the extent that personnel and facilities permit, on a no-fee basis.
- civilian hospitalization at $1.75/day, or $25, whichever is greater.
- civilian out-patient (phsician or hospital) care, not to exceed $100 per family, plus 20% of charges over $100.

Exclusions are: civilian dental care, cosmetic or voluntary surgery, treatment of congenital defects, and some chronic situations.

b. Personal Health Benefit

This benefit is usually thought of as covering complete medical and dental care of the Air Force member, without charge. However, if this definition were adopted, the elimination of the benefit might raise a serious question about military effectiveness under certain combat conditions. Therefore it is assumed that personal health care will continue to be provided "in combat zones," and the benefit to be evaluated is defined as "all personal health care of Air Force members except in combat zones." Note that elimination of this benefit would require the modification of certain Air Force procedures, so that the individual could obtain civilian health care when needed.

c. Sick Pay And Disability Pay

Air Force members draw full pay and allowances while on the sick list. If a person cannot be retained in the Air Force because of health, the amount of money he will receive depends on the severity of his disability or his length of service. Nothing is payable if disability is the result of "willful neglect" or "intentional" misconduct.

d. Commissary Privileges

Many Air Force installations have Commissaries, which offer for sale merchandise similar to that in civilian supermarkets, at prices below the usual supermarket prices, although the same range of choice may not be available in the two types of store. Commissaries are open to Air Force members and their dependents.

e. Base Exchange Privileges

Every Air Force installation, regardless of size, has an exchange. Larger exchanges sell a wide assortment of quality merchandise at substantial savings, and offer such services as taxi, automobile service station, laundry, dry cleaning, tailor shop, beauty shop, barber shop, shoe repair shop, and appliance repair shop. These facilities are open to Air Force members and their dependents.

f. Food, Including Subsistence

Food is ordinarily furnished by the Air Force, to Air Force members. When rations in kind are not available a subsistence allowance

of $2.57 per day is furnished. This includes instances where it is impracticable for subsistence in kind to be furnished, even though messes may be operating at the base to which the Air Force member is assigned. Permission to ration separately may be given at the request of the Air Force member, even though rations are available, in which case the Air Force will pay $43.80 per month, subject to minor fluctuations. Officers receive a monthly subsistence allowance of $47.88. It is postulated that, when this benefit is eliminated, the Air Force will, where necessary, "establish commercially-operated eating places to permit meal purchases," in order to avoid undue interference with routine Air Force operations. (The question of obtaining food under certain combat conditions was not thought to be a serious enough matter to warrant explicit attention in defining the benefit to be evaluted).

g. Housing, Including Housing Allowance

Rent-free housing and utilities are provided for single Air Force men; and, when available, Government-owned quarters (and free utilities) are provided for married airmen serving in grades E-4 or above. The size of the quarters, when available, is contingent on the size and composition of the member's family. If surplus quarters are available housing may be provided for airmen of lower grades. In addition, Government-owned furnishings may be provided to those who do not have their own. For married members without base housing, or for others authorized to live off-base, a Basic Allotment for Quarters (BAQ) is provided, the amount being dependent on pay grade and number of dependents. The monthly amount of the BAQ varies from $60 for an E-1 to about $131 for an E-9, plus $45-53 if the Air Force member has dependents; while for officers the range is $109-$230, plus $33-58 for dependents. It could be argued that the elimination of this benefit would require some procedural changes by the Air Force, but these were not deemed significant enough to warrant a modification of the benefit definition. Similarly, questions could be raised about the provision of "housing" under certain combat conditions, but these were judged to be minor (so far as benefit evaluation is concerned) and were therefore not dealt with explicitly.

h. Recreation Benefit

Recreation is defined to include all off-duty recreation administered by the Air Force, including sports, service clubs (parties, dances, tournaments, contests, etc.) arts, crafts, hobbies, youth activities (social, educational, cultural, religious), libraries, motion picture theatres, open messes, recreation areas (hunting, fishing, camping, picknicking, boating), special interest groups (sports car, motorcycle, power boat, rod and gun, parachute) and aero clubs. Many of these programs are paid for in whole or in part by the Air Force.

i. Educational Benefit

This benefit is defined to include all Air Force educational opportunities other than technical training conducted either at Air Force schools or on-the-job. It includes the programs of the U. S. Armed Forces Institute (more than 6,400 high school and junior college correspondence courses), the Extension Course Institute (technical correspondence courses to train Air Force personnel for specific duties), Operation Bootstrap (permanent TDY and leave for up to one year to obtain a high school diploma or college degree), the Airman Education and Commissioning Program (college program completion with full pay for selected airmen, followed by commission), and the Air Force Institute of Technology (educational advancement, for officer and civilian personnel, in areas required by the Air Force, sometimes leading to advanced degrees, primarily at civilian colleges, universities, hospitals, etc.)

j. Servicemen's Group Life Insurance Benefit

Active duty personnel are issued low-cost life insurance up to the amount of $15,000 in $5,000 increments, payable in the event of death to beneficiaries named by the insured. This insurance is convertible to a permanent plan at standard rates, without proof of good health, upon separation from the Air Force. The benefit is also defined to include death benefits, consisting of a payment to survivors of from $800 to $3,000 for immediate expenses, and certain burial rights and expenses. The practical difficulties which may be associated with civilian burial arrangements under certain combat conditions are simply ignored in defining the benefit.

k. Home Loan Insurance Benefit

If a member has been on extended active duty for at least two years, and requires housing to be occupied by his family as a home, he may finance the purchase with an FHA-insured loan. The cost of the loan insurance (1/2 of 1 percent of the average annual unpaid balance) is ordinarily paid by the borrower, but is paid by the Air Force for eligible Air Force members, up to the maximum mortgage insurable under this program ($30,000).

l. Off-duty Travel Benefit

This benefit is defined to include (1) the right of Air Force members to travel free on military aircraft, on a "space available" basis, and (2) the reduced fares available to military personnel on commercial aircraft.

m. Retirement Benefit

Air Force members are entitled to retirement pay after 20 years of service, in the monthly amount of 2.5% of basic monthly pay at time of retirement, multiplied by number of years of service up to 30, thus yielding lifetime retirement pay at rates of 50% to 75% of basic pay. By accepting a reduced rate of retired pay during his own lifetime, the retired Air Force member may ensure that part of his benefit will be paid to his widow and dependent children. The retirement benefit also includes health benefits, for the retired person and his dependents, roughly equivalent to those for dependents of members on active duty; Base Exchange and Commissary privileges; membership in NCO and Officers clubs; and base theatre privileges. The retired member may also enjoy free U.S. travel on Department of Defense aircraft, on a space available basis. He may also be eligible to transfer to equivalent Civil Service (GS) rate if employed as a civilian by the Federal Government. The benefit is defined to exclude Social Security payments.

n. Annual Leave Benefit

Members of the Air Force currently earn 2 1/2 days' leave per month of active duty, or 30 days per year, up to a total accrual of 60 days. However, no matter how much cash is given, if the leave privilege were to be eliminated there is no way this benefit could be approximated by purchase from the civilian sector. Total elimination of the benefit was also felt to be unreasonable and unrealistic, but reduction of the benefit to a level perhaps closer to that of the civilian sector—15 days—was believed to be worth consideration. Thus, for evaluation purposes, the benefit is defined as 15 days of annual leave, and excludes 3-day passes and legal holidays to the extent that these are given.

o. Federal Income Tax Benefit

Food, housing, subsistence allowances and housing allowances are not subject to Federal Income Tax. There is thus a tax advantage to Air Force members, whose magnitude varies with the situation of the Air Force member—income, family size, etc.

p. Air Force Training

Air Force training was not considered to be a "benefit," in the same sense as the preceding ones, and was explicitly excluded from the educational benefit. It may be useful to consider why this position was taken.

It is true that Air Force training may prove to be useful in non-Air-Force jobs. In fact, much Air Force recruiting literature tends to stress this benefit as the most important of all reasons for enlisting. However, there seems to be no reason to believe that Air Force training is, in fact, aimed at anything other than Air Force needs, so that its desirability is not determined in terms of its effects on the satisfaction or dissatisfaction of Air Force members.

Further, there seems to be considerable doubt about whether Air Force training is, in fact viewed as a benefit—as a form of compensation—by Air Force personnel. Admittedly it is a matter of judgment, but judgment did not suggest inclusion.

Even if it were admitted as a non-monetary benefit, however, it is not easy to see how the Air Force's needs for training personnel could effectively be met in other ways—ways which would give rise to the possibility of meaningful evaluation. One possibility would be to postulate a change under which prospective enlistees would be required to obtain certain kinds of needed training prior to enlistment, or new enlistees might be required to pay for any training they were given in the Air Force. However, the value of training to the enlistee—the change in income required to make him feel as well off as he feels now—would depend almost entirely on the price of the training to him, so all that his evaluation could show would be the time value which he attaches to money. And if the actual or prospective Air Force member were free to affect the training he receives (e.g., by buying it or not buying it) it is not clear that the Air Force could function effectively.

Despite the recruiting literature, then, and the common assumption that training is a "benefit," it did not appear to be possible to treat it in the same way as the foregoing list of fifteen non-monetary benefits, because no sufficiently reliable or meaningful alternative could be formulated for evaluation purposes. To evaluate training, it was necessary to devise some other concept of "attractiveness" which might be applied to that particular Air Force feature.

To define the "attractiveness" of training there seemed to be no reason not to go to the heart of recruiting claims. The real question here seems to be how much more the Air Force member thinks he could earn in the civilian market by virtue of his Air Force training, so that the attractiveness of training to him is defined to be this difference in earnings. In the remainder of this report it will be necessary to keep in mind that the "value" attributed to training has a different meaning from the value of any of the 15 non-monetary benefits. Similarly, when expressions such as "the total valuation placed on non-monetary benefits" are used, it applies only to the 15 items, and does not include training, because of the different concepts of attractiveness.

SECTION III

APPROACH

1. THE BASIC QUESTIONS

The fundamental questions on which this study is intended to provide some information are: (1) What is the influence of non-monetary benefits, individually and collectively, on accessions and retentions? (2) What are the differential effects of non-monetary benefits on different groups, such as "first term" and "career" personnel? (3) Will education about non-monetary benefits contribute to their effectiveness, and can such education be accomplished easily? Given the limited scope of the study and the complexity of the issues, however, it would not be reasonable to anticipate that the present study would yield definitive answers, but the questions themselves, and the discussion of the meaning of the concept of the attractiveness of non-monetary benefits, do give rise to a number of hypotheses.

a. If an Air Force non-monetary benefit should be reduced or eliminated, the individual can, by an increase in his monetary compensation, be made to feel just as well off. This hypothesis is contradicted if there is no finite sum which will make the individual indifferent to the change.

b. For any given change in non-monetary benefits, the amount of monetary compensation required to make the individual indifferent to the change, will vary greatly from individual to individual. In some cases the amount required may be infinite, i.e., for some individuals and some benefit changes the hypothesis stated in (a) will not hold.

c. The variability between individuals in the valuations placed on benefits will be partly unexplainable, due to unmeasured differences in "taste" factors which may have been influenced by heredity and life-long environment. However, the variability which <u>is</u> explainable may be due to such factors as age, length of service, rank, sex, marital status, income number of dependents, race, religion, ethnic group, attitudinal factors, current location, educational level, and other observable characteristics. It may also be due to the amount of information which the individual has, about the benefits and related areas.

d. Valuations which individuals place on non-monetary benefits will rise with their perceptions of the probability of gain. To illustrate: the individual who thinks it is likely that he will

use the educational benefit will tend to place a higher value on that benefit than the individual who thinks it unlikely. Similarly, single people will tend to place a lower value than married people on the dependent health benefit.

e. The valuation placed on the total non-monetary benefit package will be significantly different from the sum of the values placed on the individual non-monetary benefits.

f. There are a substantial number of individuals who could not be induced to remain in the Air Force by any change in monetary and/or non-monetary benefits.

g. If valuations (or attitudes) are determined by asking questions, the way in which the questions are asked, and the sequence in which they are asked, will influence the valuations and attitudes.

h. The greater the valuation of non-monetary benefits the more likely the individual is to view the Air Force as a career.

2. A SURVEY APPROACH

Only one system of non-monetary benefits for Air Force personnel is currently observable. Therefore it is impossible to make inferences about the attractiveness of non-monetary benefits, as defined here, by any empirical approach except a survey of the populations of interest. Since the changes in non-monetary benefits to which the individual will be "exposed" during the survey, in order to evaluate benefits, will be hypothetical in nature, there is an obvious danger that answers to questions will be unrealistic, but there appears to be no way to avoid it.

As the work was originally planned, the project was to deal with "accessions" and "retentions." So far as retentions are concerned, the population to be surveyed is, obviously, the Air Force itself. On a priori grounds it may be expected that those who remain in the Air Force will tend to place higher values on its attributes (including non-monetary benefits), taken together, than those who do not remain; but, if this should be so, it seems clear that it cannot justify the conclusion that non-monetary benefits are effective, since the real question is, what would have happened if the non-monetary benefit system had been different? Still, there is some hope, by studying the Air Force population, of throwing light on the role of non-monetary benefits, since it can be determined who intends to remain in the Air Force and who does not.

The effectiveness of non-monetary benefits with regard to accessions is another matter, however. The most obvious, and certainly the

most promising, approach to accessions would involve some sort of comparison of those who are attracted to the Air Force with those who are not so attracted, if only to identify and evaluate differences between them with regard to non-monetary benefits. Such a comparison cannot, of course, be conducted successfully if the survey does not include civilians, for those who were not attracted to the Air Force (to some degree) are not in the Air Force.

Accordingly, a complete survey plan, including questionnaire development, sample selection procedures, and survey administration methods, was drawn up covering both Air Force and civilian personnel, although questionnaires, procedures, etc., were, of course, different for the two classes of people. However, the civilian survey was judged to be infeasible at the time, thus virtually ensuring that it would not be possible to say very much about accessions. The remainder of this report proceeds as if the study had been restricted initially to Air Force personnel.

3. SURVEY EXPERIMENTS

A number of experiments were conducted in the course of the survey, which are taken up here in turn.

a. The Validating Experiment

It will be recalled that the concept of attractiveness adopted for this project is based on the proposition that the typical individual can be compensated precisely for any non-monetary benefit by a finite amount of money, where "compensated precisely" means that, for the given individual and benefit, it is a matter of complete indifference whether he obtains the cash or the non-monetary benefit. However, there is considerable question about the precision with which such judgments can be made. If an individual asserts that $150 would make him feel precisely as well off as a given non-monetary benefit, should this be interpreted to mean that, if he is given a choice between cash and the non-monetary benefit, he will choose the cash if the offer is $150.01, and choose the non-monetary benefit if the offer is $149.99? The fact may be that he cannot tell precisely what the non-monetary benefit is worth to him, in which case perhaps the individual should not be asked to answer a question of this kind, designed to determine a point of indifference. Perhaps, instead, he should be (repeatedly) asked his preference between some specific sum of money and the benefit; and, if he answers a number of questions of this type, it will be possible to determine the dollar <u>interval</u> within which his point of indifference lies.

Accordingly, it was decided that there would be (1) a "basic" questionnaire (for most of the sample) based on the concept of indifference—in which the individual would be asked to place dollar values on non-monetary benefits; and, (2) a "validating" experiment and questionnaire in which the individual would be asked a series of preference questions, from which inferences could be drawn about indifference, and checked against the results obtained by the basic questionnaire. In all respects the basic and validating questionnaires were identical, except for the wording of questions related to the dollar valuation of non-monetary benefits.

b. The Educational Experiment

To determine how "education" on the subject of non-monetary benefits would influence non-monetary benefit evaluations it would have been possible, in principle, to develop and teach a formal, classroom course on non-monetary benefits. Then by using control groups, or a before-and-after approach, the difference attributable to this education could have been evaluated.

What might such a course of study have entailed? Potentially, any piece of information could be relevant, but there is some subject matter which would clearly be important. Perhaps the single most important topic would be "decision-making under uncertainty," implying, of course, some theoretical material drawn from the field of economics, as well as a thorough understanding of the concept of probability. The time and effort which it would have been necessary to devote to this area is, of course, a function of the educational background of the student.

Over and above the presentation of a rational framework for viewing problems of choice, it would have been desirable to deal with the specific subject-matters related to the respective non-monetary benefits. As an illustration, consider health benefits for dependents. An understanding of the following topics would clearly have a bearing on the evaluation of these health benefits, at least for some people:

- frequency distribution of marriage, preferably for Air Force personnel, by age, rank, or any other factors which may help the student to assess his own situation, since some students will be unmarried at the time of education

- frequency distribution showing number of dependents, by age of Air Force member, by years after marriage, by rank, or by any other factors which may help the student to assess his own situation, since some students will have to estimate the dependents they will have during their Air Force service

- the costs of civilian hospital and medical insurance policies, including group plans, individual plans, commercial and major medical policies, etc., as a function of family composition, initial state of health, etc.

- the coverage, exclusions and deductions of these plans
- frequency distribution of health care costs, in addition to insurance, if these plans are obtained, individually or in combination
- frequency distribution of health care costs under CHAMPUS
- probability distributions showing the likelihood and duration of illness of various kinds, or the likelihood of requiring various amounts of hospital and/or medical care—in case the individual is interested in the possibility of self-insurance (i.e., no insurance).

Since data of the above types are unlikely to be available in a form or format which makes them completely applicable to the situation of the individual, all sorts of information, which may assist the individual in interpreting/applying the available data, may become pertinent. It is clear that, for the evaluation of this benefit, the individual cannot know too much about statistics, insurance and medicine, and a great deal of "formal education" may be the only practical basis for utilization of available information.

While it can scarcely be doubted that education, in the sense just discussed, is capable of influencing the evaluation of non-monetary benefits, such education was not feasible as part of the present project, because a significant change in education takes time. This did not rule out the possibility of much less ambitious educational experiments, although it was recognized from the beginning that the ordinary adult comes to any situation with many deep-rooted attitudes and emotions, which it would be difficult—perhaps impossible—to change by any experiment which would be feasible within the time and resource limitations of the project.

Nevertheless it was decided to conduct a modest educational experiment in which, for a portion of the sample, a certain amount of factual information relating to non-monetary benefits would be presented along with the basic questionnaire itself. Note that this meant that some information was to be "available" to the respondent, if he wished to use it, but there were no particular incentives for him to do so.

c. The Sequential Experiment

Inevitably, in the course of asking questions about the valuation of benefits, a certain amount of information is provided; e.g., if one is asked to evaluate the home loan insurance benefit, one at least learns that there <u>is</u> a home loan insurance benefit, even if this was not previously known. Similarly, if one is asked to evaluate the benefit "housing (including housing allowances)," the fact that there are housing allowances is conveyed. If the valuation of benefits could perhaps be influenced by the modest amount of "available" information of the

educational experiment, was it not possible that the act of responding to the basic questionnaire would itself change attitudes? If an individual has not systematically evaluated his non-monetary benefits, and does so for the first time, and if it is true that non-monetary benefits may influence retention, he may be "impressed" by the total, and perhaps tend to modify his responses to "attitudinal" questions, such as, "How likely is it that you will remain in the Air Force till retirement?"

To test this hypothesis it was decided to set aside a portion of the sample which would receive a fourth "type of questionnaire" (instead of the basic, validating or educational). This fourth type of questionnaire was to be identical to the basic, except for the sequence in which questions were asked and answered, and was therefore called "sequential." However, to ensure a certain amount of control over the sequence of answers (as opposed to the sequence of questions), it was decided to present the questionnaires in two parts, and to require that the first part be completed and turned in by the respondent before he received the second part. This two-part procedure was followed for all questionnaire types, and had the incidental advantage of reducing the apparent bulk of the questionnaire. The sequential questionnaire contained the same questions as the basic, but with some questions being moved from Part I to Part II, and vice versa.

4. THE QUESTIONNAIRES

The questionnaires utilized in the survey can be characterized as follows:

Basic Questionnaire:

- Part I - biographical and attitudinal questions
- Part II - primarily dollar valuations of non-monetary benefits and other matters

Validating Questionnaire

- Part I - identical to Basic, Part I
- Part II - the same as Basic, Part II, except for the permissible answers and essential, minor changes in the wording of questions

Educational Questionnaire

- Part I - identical to Basic, Part I
- Part II - identical to Basic, Part II
- Information Package - distributed to the respondent with Part II

Sequential Questionnaire

- Part I - biographical and monetary valuation questions from Basic, Parts I and II

Part II - attitudinal questions from Basic, Part I

The four types of questionnaire are discussed briefly below.

a. The Basic Questionnaire

The content of this questionnaire is presented as Appendix I, and Appendix II, corresponding to Parts I and II, respectively. Part I, after a brief explanation of the purpose of the survey, requested the respondent to supply the following "biographical" information:

- Social Security number
- age last birthday
- Air Force specialty codes (duty and primary)
- length of Air Force service in years and months
- sex (male or female)
- marital status (single, married, formerly married)
- number of dependents (excluding respondent)
  - .. wife and children (0, 1, 2, etc.)
  - .. other dependents (0, 1, 2, etc.)
- pay grade
  - .. E (1 through 9)
  - .. W (1 through 4)
  - .. O (1 through 6)
- highest education achieved so far (elementary, some high school, high school graduate, some college, college graduate, post-graduate degree)
- monthly income from all sources, after taxes, including income of spouse and dependent children (at $500 increments to $2,500, and "all other")
- race (Black, White, other)
- religion (Roman Catholic, Protestant, Jewish, other)
- ancestry (British, Irish, Italian, German, Polish, other European, Latin American, African, all other)
- service of relatives in Armed Forces of U. S. or other countries (parents, siblings, other, none)
- location of quarters (on-base, off-base)
- Air Force cash payments before taxes (dollars per month)

Part I of the questionnaire also sought to elicit certain attitudinal information

- probability of remaining in the Air Force till retirement (0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0)

- whether the respondent would remain in the Air Force with certain inducements (cash—in bonus or pay, promotion, location choice, job assignment choice, shorter enlistment period, non-combatant status, better living conditions, less severe discipline, improved recreation, some combination)

- whether the respondent would have joined in the absence of the draft (yes, probably, probably not, no, does not apply—not subject to draft)

- knowledge of each of the 15 benefits (no idea, some idea, good idea, complete understanding)

- comparison of 29 features of the Air Force and civilian life, 16 covering benefits, and the remainder covering such attributes as security, freedom, social life, etc., (the respondent being asked to determine, for each feature, whether the Air Force was far better, better, same, worse, or far worse)

- identification of the three factors—out of the preceding 29—deemed most important in deciding whether or not to remain in the Air Force

The potential significance of the answers to these questions is perhaps sufficiently obvious not to require discussion. The only one which may deserve a comment is the question relating to understanding of non-monetary benefits. If an individual says he has little or no knowledge of the content of a benefit there is some question about whether the valuations he placed on benefits should be taken seriously, at least in the absence of "education." Conversely, if an individual says he has complete understanding of the content of benefits, it is perhaps not to be expected that such minor phenomena as the sequence of questions will have any influence (although actual and claimed knowledge could be quite different).

Part II of the basic questionnaire begins with a question about the likelihood that the respondent will take advantage of each of the 15 non-monetary benefits, (very likely, likely, unlikely, very unlikely, no idea what benefit is). The next question, after a rather long introduction and explanation, consists of 15 parts, each of which requires an evaluation, in dollars per month, of a particular non-monetary benefit. The remaining questions each require an answer in dollars per month to inquiries about, respectively, the total value of the 15 non-monetary benefits, expected Air Force cash income, hypothetical income in civilian life, if the individual were to leave the Air Force now, and hypothetical income in civilian life if the individual had received no Air Force training, and were to leave the Air Force now.

There are many ways in which the basic monetary evalution questions might have been formulated, of course, and a word or two about them may be in order. First, the sum of money required to compensate the individual for a benefit may be conceived as a lump sum (one-time payment) or as a flow (a series of payments over a period of time). How, for example, should the officer with nineteen years of service, planning to retire in one year, think of evaluating the retirement benefit? For him it might be easier to think in lump sum terms. Similarly, an individual who has an obligation for a large hospital bill, which has not yet been paid, may, if health benefits are eliminated, tend to think in lump sum terms, especially if he is planning to leave the service shortly. However, in situations where there are no unpaid obligations (legal or moral) arising from past service, the flow concept seems thoroughly appropriate. The possibility of asking the respondent for two values for each benefit—a lump sum for unpaid legal or moral obligations arising from past service, and a flow for future obligations—was considered, but was abandoned because of (a) the confusion it would certainly introduce into responses, (b) the unrealistic nature of the implicit assumption that lump sum compensation would ever be paid on the basis of "moral" entitlement alone, and (c) the fact that the respondent can be instructed to assume that legal obligations of the Air Force already incurred will be honored in any event. On the whole, flows were simpler, and were adopted; and the problem of moral obligation was handled by reminding the respondent that the monetary compensation for a non-monetary benefit would terminate with his period of active duty.

A second important issue relates to the individual who wants to insist that a benefit is "priceless," by using some such spurious argument as "How can you put a dollar value on health?" The introduction to the question attempted to suggest that this was an inappropriate way to think about the problem, but straddled the fence by permitting the individual to respond with "P" instead of a dollar amount if he viewed a benefit as worth $1 million per month, or more.

A third issue is best described by an illustration. Consider the position of the 20-year old airman, perhaps with a couple of years of service, and without any dependents, who is asked how much increase in compensation would be required to make him indifferent to the loss of dependent health benefits. His first inclination would often be to respond with "$0"—perhaps, if questioned, on such grounds as "I'm single," or "That benefit 'does not apply' to me."[1] This kind of response may be quite rational if the respondent views it as absolutely certain that he will have no dependents during his Air Force service, since the probability of gain from the benefit, and therefore its worth to him, is zero. Usually, however, if the answer given is "$0" this will

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[1]These were the kinds of responses actually obtained with developmental versions of the questionnaire, when the respondent was interviewed about his evaluations.

simply be a restatement of the proposition "I do not currently have any dependents." It would have been possible to proceed with questionnaire construction on the assumption that this type of irrationality should simply be accepted for what it is, but it was believed that it might be significantly reduced by a few words of instruction, in connection with the questions themselves, stressing the legitimacy of attaching dollar values to benefits to which there is no current entitlement; and it was decided to introduce them.[2] (Another alternative would have been to introduce them into the educational experiment, but this was rejected because it was felt to be desirable to restrict that experiment to the provision of "factual" information).

Finally, it may be noted that the last question of the questionnaire (No. 28) was introduced solely to make it possible to attribute a value to Air Force training, by taking the difference between the answers to the last two questions (Nos. 27 and 28).

b. The Validating Questionnaire

Part I of the validating questionnaire is identical to Part I of the basic questionnaire, is shown as Appendix I, and requires no separate discussion. Part II of the validating questionnaire is shown as Appendix III, and does require some discussion.

In the basic questionnaire the individual is asked, for each benefit change, to "write down the monthly pay increase (to the nearest dollar) required to make you feel exactly as well off as you feel now." In the validating questionnaire, the individual is instructed, correspondingly, to "circle the lowest monthly increase in pay you would accept," so that the validating questionnaire itself had to have a list of dollar amounts imprinted on the questionnaire. It was because of the danger that the range of numbers actually listed might influence responses that this form of question became part of the validating, rather than the basic, questionnaire. In particular, it may be noted that (1) the permissible dollar responses had to be the same for every benefit, including the total, to avoid differential bias from one question to another, and hence had to cover a very large range; (2) the permissible responses ranged from $0 to $10,000 (monthly) with an additional open-ended category of "$10,000+" (somewhat comparable to the P response, "$1,000,000 or more" for the basic questionnaire); (3) from a visual standpoint, the middle range of numbers displayed was $325 to $550, counting those in the central column (out of 11 columns), or, including, the middle three columns, the range was $175 to $900; and (4) there was no way for the individual to give a "priceless" response, except to the extent that that was indicated by circling "$10,000+."

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[2]Some may question the word "irrationality," but it is believed to be just as appropriate as it would be if applied to the behavior of the individual who claims that the personal health benefit is worth $0 because "I do not currently have any illness."

In all other respects Part II of the validating questionnaire was the same as Part II of the basic questionnaire.

c. The Educational Questionnaire

This questionnaire consisted of a Part I, and a Part II which were, respectively, the same as Parts I and II of the basic questionnaire, shown as Appendix I and II. In addition, however, an informational package was to be given to each respondent along with Part II, to assist him in responding thereto, and this package is displayed as Appendix IV.

It may be observed that, while the package was clearly identified as to purpose, and contained a table of contents for ease of reference, the respondent was not directed or instructed to use the information although he was presumably aware of its presence. To avoid the problem of non-use, or, perhaps more importantly, to avoid ignorance, on the part of the investigator, of the extent of use or non-use, consideration was given to requiring the information package to be read aloud by the monitor, before the administration of Part II. In the end this idea was abandoned because of the additional source of variability (the monitor) which it would have introduced.

In a sense the content of the information package was, of course, arbitrary. However, given the basic concept that it should be (a) factual in nature, (b) brief enough to be digested in the course of a one-hour period for questionnaire administration, (c) useful to individuals with very different initial states of information, and (d) clearly pertinent for a broad range of tastes, there was not too much latitude concerning the type of content. The basic effort was, in general, to describe, at a rather broad level, first, the non-monetary benefit itself; second, what many would regard as a close substitute for the non-monetary benefit, available to civilians; third, the cost of the substitute; and, where warranted, the major differences between the non-monetary benefit and the substitute.

This pattern was not always followed, of course. For example, for the non-monetary benefit "15 days of annual leave," there is no obvious substitute—which was one reason for permitting the "P" response to the basic questionnaire. In this instance the only information provided was that annual leave was 30 days—surely known to most respondents. It would have been possible to give some guidance on how to think about the problem, but there were many reasons not to follow that path in the present project.

From what has just been said it should be clear that, although, as a rule, information was given about substitutes for the non-monetary benefits, it was not assumed—and the respondent was specifically so instructed on the questionnaire itself (all versions)—that any

compensatory change in pay would be spent on a substitute. Such a restriction would have had the effect, even if a substitute always existed, of artificially increasing the amount of money required to compensate for the non-monetary benefit, and would, in some instances, have had clearly ridiculous consequences: for example, in the case of valuation of the dependent health benefit by a young single individual without dependents, who has some general expectation that he will marry at some point in his Air Force career, but obviously would not purchase dependent health insurance now! Even without considering an "extreme" case, however, the logic is unassailable: if one is free to allocate a sum S to several different goods, and chooses to allocate it to more than one, it follows that, if restricted to one good, the individual will not be as well off. In other words to achieve the same level of satisfaction he will need more than S dollars if his choice is restricted.

d. The Sequential Questionnaire

Question for question the sequential questionnaire was identical to the basic questionnaire, but the question sequence was different, and, most importantly, the questions were allocated differently to Parts I and II. (It will be recalled that Part II was made available to the respondent only after Part I had been turned in). For the convenience of the reader, however, the sequential questionnaire is presented in its entirety as Appendix V.

The main differences between the basic and sequential questionnaire can be described as follows: to form Part I of the sequential questionnaire, Part II of the basic questionnaire was added in its entirety to Part I of the basic questionnaire, and certain attitudinal questions were removed from Part I of the basic questionnaire to form Part II of the sequential questionnaire. Thus in the sequential questionnaire, all of the dollar valuation responses were in Part I, while Part II consisted of the questions concerning, respectively, the comparison of 29 Air Force and civilian attributes; the most important of these attributes in deciding whether or not to remain in the Air Force; the likelihood of remaining in the Air Force till retirement; the inducements which would, or would not, cause the individual to remain in the Air Force; and the influence of the draft.

This change in sequence was seen as having two possible effects: (1) the valuation placed on non-monetary benefits might be different, primarily because of the deferral of the exercise of comparing Air Force features with their civilian counterparts; and (2) statements about attitudes, especially about the probability of remaining in the Air Force, might be modified by the prior exercise of placing explicit dollar values on the non-monetary benefits. From one point of view the sequential questionnaire could be considered a special form of educational experiment, with emphasis not on information provided, but on the effects of

causing the respondent to do some modest amounts of thinking about the relative merits of Air Force and civilian life: (1) in the basic questionnaire, before the non-monetary benefit evaluations and after identifying the probability of remaining in the Air Force; (2) in the sequential questionnaire, after the non-monetary benefit evaluations and before deciding on the likelihood of remaining in the Air Force.

5. THE SAMPLING PLAN

a. The Stratification Factors

It appears obvious that there are a great many factors which may influence the evaluation of non-monetary benefits, e.g., age, sex, marital status, rank, education, and so on. With a strictly random sample some of the potentially significant factors would, of course, be present in a small proportion of the sample; e.g., the random sample would be almost entirely male. Hence the number of females might be too small to permit an acceptable test of the hypothesis that sex helps to explain the variability in evaluations of benefits. To deal with this type of problem the sample size can, of course, be increased, or we can deliberately "over-sample" the kinds of respondents (e.g., women) who would be present in only a small proportion of a wholly random sample. Since the former course is more costly, the choice made was to utilize a random, stratified sample.

However, if each one of the factors previously identified as potentially significant (age, race, rank, etc.) were to provide a criterion of stratification, a very large sample indeed would be required. In fact, even if very great statistical reliability (confidence) is not insisted upon, the total sample required could easily be shown to exceed the entire Air Force population. The fact that several questionnaires and/or experiments are involved actually would have increased the sample sizes even further.

As a practical matter it was necessary to select a few bases that would allow for easily implementable stratification, and to hope that analysis would successfully compensate for the absence of stratification where stratification could not be accomplished. The first basis for stratification was pay grade, and it was assumed that this would be highly correlated with such potentially important factors as age, income, length of service, education, and perhaps other variables. The pay grade groups selected for stratification were six in number, as follows:

- E-1
- E-2
- E-3, E-4, and E-5
- E-6, E-7, E-8 and E-9
- O-1, O-2 and O-3
- O-4, O-5 and O-6

Ultimately it was decided that, within each group, the sample would be selected so that it mirrored, with regard to rank, the Air Force population as a whole.

Another basis selected for stratification was marital status: "never been married" and "all other." Obviously, at least some of the non-monetary benefits were such that they might be influenced greatly by this factor, e.g., dependent health, life insurance and commissary. Finally, it was seen as being possible that there might be important differences, with regard to non-monetary benefits, according to the sex of the respondent, e.g., recreation, education and retirement.

Over and above the foregoing types of stratification, which can be characterized as dependent upon the personal characteristics of the respondent, two other types of stratification came into play. The first stemmed from the recognition that there might, for a variety of reasons, be important differences between individual bases. Some of these reasons could be related to factors characteristic of the base organization itself, e.g., differences in perceptions (real or imaginary) of the quality of food or medical care; or differences perhaps due to such intangibles as morale or discipline. Nothing, obviously, could be done to stratify in terms of such factors, but it was thought that some systematic inter-base differences might be picked up in terms of (a) size, and (b) proximity to population centers. The latter, it was believed, might well influence the availability and attractiveness of phenomena closely related to non-monetary benefits: e.g., family housing, off-base recreation, dependents' health facilities. Accordingly, it was decided that four base types would be recognized for stratification purposes, in terms of a characterization of each base as "large" or "small," and "urban" or "non-urban." "Urban" was interpreted to mean "within 15-20 miles of a population center of 200,000 or more," while "large" and "small" were determined from the upper and lower ends of a list of CONUS Air Force bases, rank-ordered by the number of assigned personnel.

The final basis for "stratification" which was necessary arose from what has here been called questionnaire type.

If all of the personal factors had been used routinely they would, by themselves, have required 24 cells (6 paygrade groups, times 2 marital status groups, times 2 sex groups). However, it was believed to be impractical and unnecessary to duplicate, for women, the 12 cells that related to men. Moreover, it was necessary to recognize that, despite the identification of four "base types," the E-1 paygrade group would be found in significant numbers only in one base—Lackland, so that, for each of the four other base types only 10 cells would be identified for men (5 paygrade groups times 2 marital status).

For the basic questionnaire, then, it was decided to use five types of base location: large urban, large non-urban, small urban, small

non-urban, and Lackland. Within each of first four base categories, 10 male cells were identified, plus a single additional cell for women covering (randomly) the five paygrade groups and both marital status categories, for a total of 11 cells from each of the first four base categories. In addition, 3 cells were identified for Lackland: female E-1's; never-married male E-1's; and other male E-1's. This gave a total of 47 cells for the basic questionnaire. However, because of possible difficulty in obtaining the desired number of responses in each cell, especially from small bases, it was decided to split the cell between two locations (bases) for each type of base location. Thus the number of bases to be selected to obtain the basic questionnaire was 9.

For the validating, educational and sequential questionnaires, respectively, it was decided to use the 11 basic cells (5 never-married, male pay-grade groups; 5 other, male, pay-grade groups; one female group). Since the large/small, urban/non-urban distinctions were no longer of special interest, this gave rise to 33 additional cells, and a total of 80. For each questionnaire type two large bases were to be used, one urban and the other non-urban, the sample population to be allocated equally between them. This required the selection of 6 additional bases, for a total of 15.

b. Determination Of Cell Size

Given that very little was known in advance about the distributions which would be obtained, the cell size selected had to be quite arbitary. The most reasonable procedure seemed to be to decide (a) what differences (in means of non-monetary benefit valuations) it was desirable to differentiate; and (b) what risks of error, of the first and second kind, would be assumed. Then, using a standard "operating characteristics" chart for the t statistic,[3] (two-tailed), the sample cell size could be determined.

The determination of the magnitude of mean differences which it is desirable to distinguish can be made either in terms of an absolute number, such as $50, or a relative (standardized) difference such as a fraction of the standard deviation. In both cases the selection is judgmental and must be based on a decision of what is practical and/or important (e.g., a $1 difference in a $100 benefit probably is not important). For the purposes of this study the latter method was chosen,

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[3]The t statistic is the test statistic typically used to test whether or not the means of a variable computed from two or more samples are statistically significantly different when the standard deviation is unknown. An operating characteristics chart is a set of curves which graphically displays the probability of acceptance of the hypothesis of equality of two means, as a function of risk level, standard deviation and number of observations.

since a separate absolute difference might have been appropriate for each benefit, whereas there is no good reason why the same fraction of the standard deviation should not be used for each of the benefit valuations. It was assumed that it would be desirable to distinguish between differences of at least one half of a standard deviation, and that a risk of 0.05 for each type of error (rejecting a difference when it really exists, and accepting it when it does not) was tolerable. Thus, it was decided that the cell size should be 53.[4] It may be noted, however, that it was anticipated that aggregation of cells would often be meaningful (e.g., across bases), making possible the recognition of differences smaller than one-half of a standard deviation, and/or smaller risks than 0.05.

However, it was assumed that respondents would omit the answers to some questions, giving rise to the need for a larger cell size. Specifically, it was assumed that 20% of the answers would be blank, so that, allowing for the blanks, a cell size of 66 would be required to achieve the selected confidence levels.

Further, it was assumed that, of the individuals selected by the Air Force to participate in the survey, only 75% would, in fact, do so; i.e., only 75% would be available to answer the questions. Allowing for this type of non-response required the cell size to be increased still further, to a total of 88.

c. Number Of Questionnaires By Type

Since there were to be a total of 80 cells, each with a sample of 88, the total sample size was to be 7,040. These were to be distributed as shown below.

Basic Questionnaire

Two large urban bases, two large non-urban bases, two small urban bases, two small non-urban bases, each to provide a sample of 484, consisting of 11 cells of 44 each. In addition, Lackland was to provide a sample consisting of 3 cells of 88 each.

Validating Questionnaire

One large urban base, and one large, non-urban base, each to provide a sample of 484, consisting of 11 cells of 44 each.

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[4]See, for example, Ireson and Grant, Handbook of Industrial Engineering and Management, Prentice-Hall, Inc., Englewood Cliffs, 1955. Page 859 shows the "Operating Characteristics of the 2-sided t for a level of significance equal to 0.05."

Educational Questionnaire

Same as for validating.

Sequential Questionnaire

Same as for validating.

6. SURVEY ADMINISTRATION

Once the survey plan had been approved by USAF, administration of the survey could go forward. Except for actual mailing of the questionnaires and related instructional materials to the bases, administration was conducted entirely by USAF.

The salient points can be summed up as follows:

a. Four lists of candidate bases were prepared which, respectively, satisfied the urban/non-urban and large/small criteria. From these lists the selected 14 required bases (plus Lackland) were coordinated through the Hq. USAF/ACMR. The selected bases, their respective base types, and the questionnaire types used with each are shown below as Table I.

b. A preliminary set of instructions to be sent to the selected CBPO's was prepared. This set was modified and tested before being finalized. As the sets were distributed they included very detailed instructions for sample selection for each individual pay grade, for women, etc., as well as instructions on what to do if the available numbers of personnel in each cell were smaller than the numbers requested. The instructions also included a sample computer procedure to be used to ensure random selection (subject to the constraints) of the individuals who would be asked to complete the questionnaire. Finally, the instructions were clear that (1) the administration of the questionnaire should take place in a supervised, group situation, permitting "thoughtful, unhurried and independent responses;" (2) Part I of the questionnaire was to be completed and returned to the monitor before Part II was issued; and (3) the informational package, if received, was to be distributed with Part II. A copy of the instructions distributed to the CBPO's (other than the sample computer procedure itself) are shown here as Appendix VI.

c. Completed questionnaires were to be returned directly to the contractor for analysis of the data.

TABLE 1: SELECTED BASES, BASE TYPES, AND QUESTIONNAIRE TYPES

Base Name	Base Type	Questionnaire Type
Offutt AFB	Large urban	Basic
Langley AFB	Large urban	Basic
McGuire AFB	Large urban	Validating
Travis AFB	Large urban	Educational
Wright-Patterson AFB	Large urban	Sequential
Eglin AFB	Large non-urban	Basic
Keesler AFB	Large non-urban	Basic
Grand Forks AFB	Large non-urban	Validating
Nellis AFB[a]	Large non-urban	Educational
Chanute AFB	Large non-urban	Sequential
Fairchild AFB	Small urban	Basic
Carswell AFB	Small urban	Basic
Edwards AFB	Small non-urban	Basic
Loring AFB	Small non-urban	Basic
Lackland AFB	Large urban	Basic

[a]All returns from Nellis AFB were lost in the mail.

7. CONCLUDING NOTE ON APPROACH

Although not discussed specifically in this report, it should be understood that neither the questionnaires employed, nor the rules of administration were developed without careful thought. In actual fact, initial versions of the questionnaire were informally "tested" on a small sample of Air Force personnel. The personnel were subsequently interviewed, and appropriate modifications made to the questionnaire. This process was repeated three times before the final questionnaire was finalized for field administration.

Similarly, an actual small-scale field test was conducted using a preliminary version of the CBPO Administration instructions, before the final instructions were written.

SECTION IV

RESULTS

1. RESPONSE

Of the total of 7,040 questionnaires which were sent to the selected bases, 3,698 were returned, for a completion ratio of slightly greater than 50%. (Remember that the expected response rate was such that 5,280 completed questionnaires should have been returned). Non-response was thus substantially greater than had been anticipated at the initiation of survey effort. Although reasons for such non-response cannot be known with any degree of certainty, it may be said it was probably not attributable to properties of the questionnaire itself. (Incomplete questionnaires, on the other hand, were no doubt partly due to the questionnaire itself). However, the method of administration with its lack of direct control may have contributed significantly to the problem. In addition, the complete set of responses from one base were lost in the mail. Even allowing for this, however, response rates for a number of other bases were far below expectations, although there was great variation between individual bases.

The relatively small number of questionnaires returned was particularly serious in terms of the educational experiment. One of the two bases involved in this experiment was the one from which no responses were received, while the other had a response rate of less than 44%. As a consequence the average cell size of the stratified sample for this experiment was about 19—versus the 88 that "might have been" and the 66 that was expected.

These data do not, of course, reflect the non-response to individual questions, which was not of important dimensions except in the area of placing dollar values on non-monetary benefits. The magnitude and complexity of this problem can be illustrated by referring to the first of the benefits listed in the questionnaires, namely, dependent health. There were 416 questionnaires in which the value of this benefit was left blank (out of 3,698 questionnaires returned). This could be considered not serious in view of (1) the questionnaire instruction that the answer was to be left blank if the respondent had "no idea what the benefit is," and (2) the general expectation of 20% non-response to individual questions. Indeed, a superficial check seems to support the view that non-response was due to following the instruction, since, in response to another question there were 351 who claimed to have no idea what the dependent health benefit was, suggesting that only 65 were genuine "non-responses" to that question. However, analysis shows that of the 351 with "no idea," only 105 actually left the answer blank. It is apparent, therefore, that 246 persons with, allegedly, no idea what the benefit is, actually provided answers to that question, while 311 persons

who "should" have responded did not do so. Nevertheless the proportion of blanks was not such as to cause undue concern about the questionnaire.

2. MISCELLANEOUS CHARACTERISTICS OF SAMPLE

There are a number of general or miscellaneous characteristics of the sample which it may be important to know, in order to understand and place in perspective the results to be displayed below:

- About half of the sample had been in the Air Force more than 48 months, and about 10% of the sample more than 20 years.

- About 40% of the respondents were aged 23 or under, and about 10% were older than 41 years.

- About 12% of the respondents were female.

- According to the stratification scheme, the number of "never-married" and "other" respondents should have been about the same, but the actual proportions were 38% and 62%, respectively.

- According to the stratification scheme the numbers of respondents should have been about equal in the six pay grade groups other than the E-1 group. In fact the numbers of respondents were

  .. 521 in the E-2 group
  .. 1,021 in the "E-3, E-4 and E-5" group
  .. 663 in the "E-6, E-7, E-8 and E-9" group
  .. 634 in the "O-1, O-2 and O-3" group
  .. 531 in the "O-4 and up" group

  In addition, there were 278 E-1 responses, including some from bases other than Lackland (which, according to the stratification scheme, was to be the only base in which E-1's were sampled).

- The mean number of dependents was 1.6 per respondent, not including the respondent.

- Only 4% of the respondents failed to complete high school, while 31% of the respondents were college graduates (including 11% with post-graduate degrees).

- 38% of the respondents had family (cash) incomes under $500 per month, and 11% had incomes over $1500 per month.

- Blacks constituted 11% and Whites 86% of the respondents.

- Protestants constituted 57% and Roman Catholics 27% of the respondents.

- The principal ethnic groups were: German-22%; British-18%; Irish-14%; Other European-23%; African-9%; All other-14%.

- Of the respondents 51% reported one or both parents in the Armed Forces; 41% had siblings in the Armed Forces (currently or previously); 17% had both parents and siblings.

- More than half of the respondents—55%—lived on base.

- Those who said that it was certain that they would remain in the Air Force till retirement constituted 35% of the respondents, while those who said there was no chance whatever that they would remain in the Air Force were about half as numerous. About 18% said the chances were 50-50. Thus the intervening probabilities—0.1, 0.2, 0.3, 0.4, 0.6, 0.7, 0.8, 0.9—together represented only about 29% of the total.

- The following percentages of respondents whose probability of staying in the Air Force was 0.9 or less said they would remain in the Air Force if given: sufficient cash-71%; rapid promotion-68%; choice of location-77%; choice of jobs-74%; shorter enlistment-62%; less severe military discipline-43%; improved recreation (including clubs)-47%; some combination of the foregoing-81%. Note that many persons checked more than one—implying, for example, that if cash and promotions were both checked, either one could be sufficient to induce the individual to remain in the Air Force, (assuming respondents interpreted the question literally).

- Would the Air Force members have enlisted in the absence of the draft? Their responses were: Yes-39%; Probably-14%; Probably not-12%; No-15%; Does not apply-20%.

- The number of respondents who said they had "no idea" what a particular benefit was varied from benefit to benefit, the largest number (for "Federal tax break") constituting 35% of the respondents, followed by "home loan insurance"-31%, and going down to lows of 2% for "base exchange" and "annual leave." Complete understanding was claimed by 59% for the "Commissary," to a low of 13% for "home loan insurance."

- Every benefit was declared to be "priceless" by some—from a high of 16% for "retirement" to a low of 3% for "recreation." Even the "Federal tax break" was said to be priceless by 5% of the respondents.

- Non-response to the 15 benefit valuation questions differed sharply from benefit to benefit, led by 31% for "home loan insurance" and 14% for "retirement," and going down to 8% for the Commissary.

Of all of these miscellaneous characteristics, perhaps the most striking relates to the fact that such a large proportion of the sample consisted of personnel who think it is certain that they will remain in the Air Force till retirement, including many who have already served more than 20 years, while an additional substantial fraction sees no chance whatever of remaining in the Air Force.

The large number of "priceless" answers to the monetary evaluation questions is also striking. They suggest that a great many people in the Air Force did not understand some benefits or the questions being asked about them, or, perhaps, had no idea how to think about the decision problem—despite the strong hint given in the preamble to the questions—or simply did not make the mental effort required.

Finally, the discrepancies between certain characteristics of the sample and the characteristics which were sought via stratification are also marked, e.g., the proportion by marital status and pay grade group.

These and other general characteristics will no doubt have an important role in explaining some of the results displayed below.

3. SAMPLING DISTRIBUTIONS FOR NON-MONETARY BENEFITS

The distributions obtained had certain fundamental similarities for each of the benefits, although the means, variances and relations between them differed greatly. This similarity could be seen with regard to (1) the very long tail at the upper end of each distribution; (2) the tendency of individuals to provide "round" answers, so that "modes" tend to occur at such values as $500; and (3) the existence of substantial numbers of individuals who (a) thought the benefit completely worthless ($0), or (b) thought it beyond price (P), or (c) thought it undesirable to answer at all. These matters are illustrated in Figure I for the dependent health benefit.

The sampling means and standard deviations for each of the benefits are shown in Table II. Note that the values shown for a given benefit are the mean and standard deviation of the values placed on that benefit by respondents to the corresponding valuation question, where the values are expressed in dollars per month. For every individual benefit except retirement the mean is based upon an arbitrary exclusion of any response greater than $2500 per month, and, of course, automatically excludes any response of "P" and any response which is blank. It should be noted that responses to the validating questionnaire were adjusted, for comparability with other responses, so as to place them at the midpoint of an interval rather than the end.[5]

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[5]The validating questionnaire required the respondent to say, for example, that he would accept $60, but not $50, for a given benefit. For computational purposes this was treated as a response of $55, i.e., "indifference" would occur at this value.

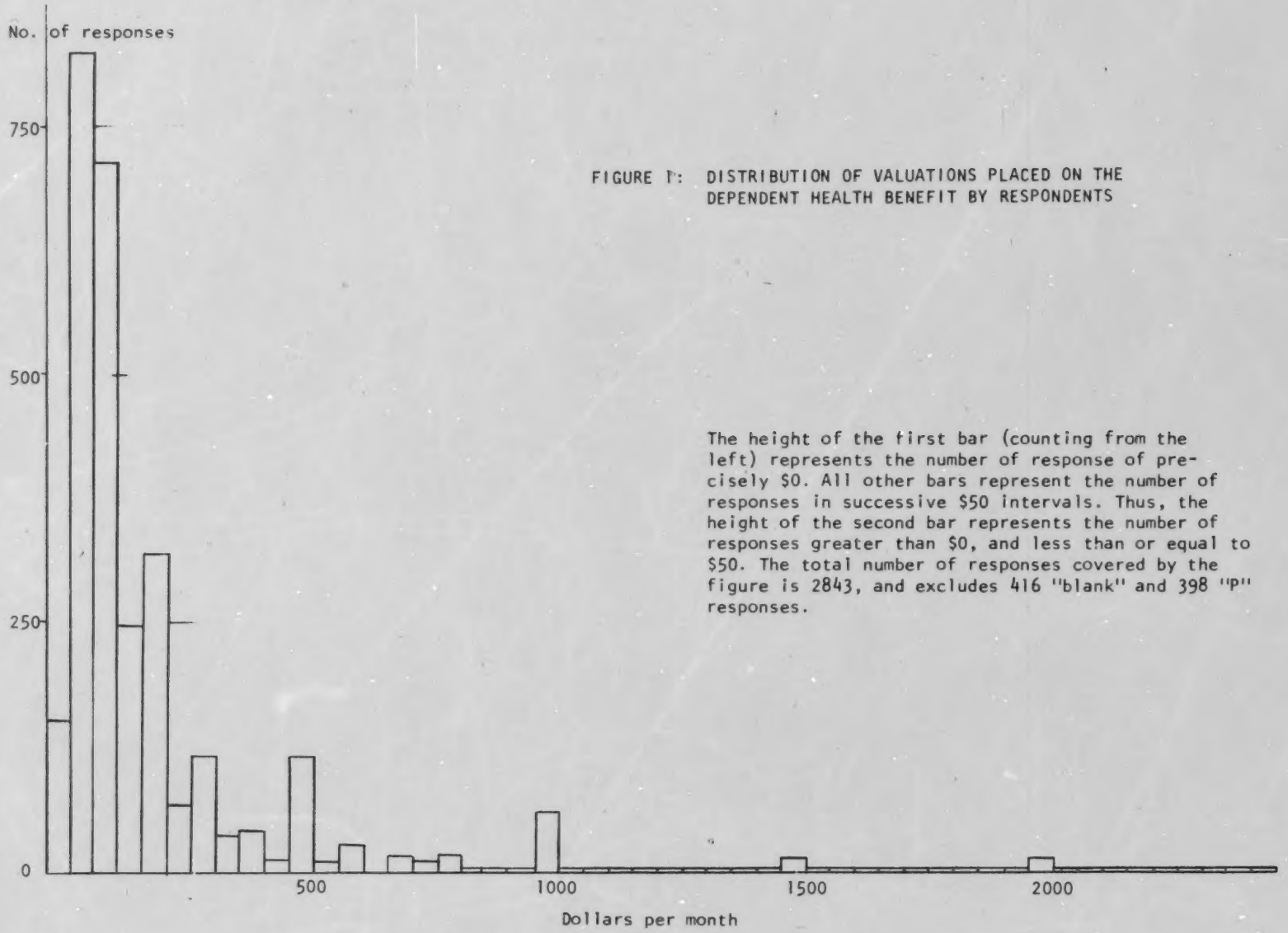

FIGURE 1: DISTRIBUTION OF VALUATIONS PLACED ON THE DEPENDENT HEALTH BENEFIT BY RESPONDENTS

The height of the first bar (counting from the left) represents the number of response of precisely $0. All other bars represent the number of responses in successive $50 intervals. Thus, the height of the second bar represents the number of responses greater than $0, and less than or equal to $50. The total number of responses covered by the figure is 2843, and excludes 416 "blank" and 398 "P" responses.

TABLE II: MEANS AND STANDARD DEVIATIONS OF NON-MONETARY BENEFITS BASED ON TOTAL SAMPLE

(dollars per month)

NAME OF BENEFIT	Mean	Standard deviation	Number of responses
Dependent Health	195	298	2843
Personal Health	184	294	2903
Sick Pay	254	383	2833
Commissary	126	198	3285
Base Exchange	106	200	3284
Food	132	205	3232
Housing	246	207	3262
Recreation	69	164	3172
Education	149	265	2909
Life Insurance	107	242	3012
Home Loan Ins.	106	253	2335
Travel	92	221	2988
Retirement	756	2105	2604
Leave	201	298	2881
Tax Break	129	250	2546

Why exclude values greater than $2500? Consider a single observation (response) of, say, $100,000 for the dependent health benefit. The inclusion or exclusion of this one observation, given the fact of 2844 usable responses, makes a difference of about $35 in the total sample mean. Half a dozen such observations, or a dozen at $50,000, would more than double the total sample mean shown in the table. Further, a single such observation in a cell of 25 or 50, say, has such marked effects on its mean and standard deviation as to dominate all other effects, and therefore precludes the meaningful application of many statistical tests. Finally, while very large differences in individual perceptions, circumstances and tastes unquestionably exist, so that large differences in benefit valuations are to be anticipated, there are surely limits beyond which we must suspect that the explanation lies either in the knowledge and understanding of the respondent or his motivation in responding to the questions. Even cursory examination of a few questionnaires containing such extreme responses establishes this; as, for example, in the case of one individual who declared, in Part I, that he definitely would not have joined the Air Force in the absence of the draft, wished to get out of the Air Force as soon as possible, and could not be induced to remain for anything—or at least for anything mentioned, but, in Part II, chose to place a valuation of $99,999 per month on each and every benefit!

Recognizing the presence of such responses in our sample, how can a line be drawn between the acceptable and the unacceptable? A case can be made for the proposition that a value of even $2500 per month—$30,000 per year—for, say, Air Force housing, is so extreme as to raise a question about the honesty or purpose of the respondent. Nevertheless, there is no way, in general, to discard the hypothesis of extreme lack of knowledge or even of extreme tastes in special circumstances. Since it was felt to be important to avoid imposing the analysts' judgments and tastes on the data, it was decided to draw the line in a way which excluded only a very small number of observations whose inclusion would have very marked effects on means and standard deviations. For dependent health, for example, 39 individuals gave monetary responses of greater than $2500 per month.[6]

In retrospect it may have been better to conduct the entire analysis in terms of medians rather than means. For example, the median

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[6]Because it was recognized that there were individuals in the sample nearing retirement, for whom it might be reasonable to place extremely high current cash values on the retirement benefit, a decision was made to include all retirement values, even those in excess of $2500 per month. For example, an individual who is one year from his retirement would have to count on only 12 monthly payments to recoup for the loss of a life income, so that a number such as $10,000 per month, say, would not be unreasonable. In actual fact, because of data processing space limitations it proved to be necessary to exclude retirement responses in excess of $32,000 per month.

for dependent health would drop to the interval $90-$100 per month, as compared with a mean of $195, and the former would, of course, be independent of extreme values. In actual fact, however, neither the medians nor the means, adjusted or otherwise, for the entire sample, can have very much significance. Recall that the sample is a stratified sample, so that sample means or medians are a function of the strata utilized, strata response rates, etc., and thus must not, in any circumstances, be taken to represent the Air Force as a whole. Indeed, there is no meaningful way to extrapolate to the Air Force as a whole unless we can establish how the values placed on benefits are related to observable Air Force characteristics. To illustrate, if the values placed on benefits can be shown to be related to rank—and if it is assumed that nothing else is influential—then the benefit values obtained by rank could be weighted by the relative frequencies of the various Air Force ranks in order to characterize the Air Force as a whole. It would not be surprising, for example, if the mean (or median) value of the retirement benefit, obtained in the sample, depended on the mix of ranks in the sample, for it seems evident on a priori grounds that persons nearing retirement will place higher values on retirement benefits.

In any event, perhaps the most outstanding characteristic of the sample as a whole is the enormous variance associated with each benefit, e.g., for the retirement benefit the standard deviation is about 3 times the mean (the highest such ratio among the benefits). While it may be hoped to unravel some of the major "causes" of this variance, experience makes it completely clear that, on the basis of responses to a relatively brief and rather general questionnaire, it will not be possible, by any technique of analysis, to identify the distinguishing characteristics of extreme respondents, e.g., the 28 individuals who assigned values of $1500 or more per month (but less than $2500) to dependent health.

A second outstanding characteristic of the sample is worth noting: the mean values of the benefits seem to be very high. Although there are certainly important matters of taste involved in many benefits—individual values in the philosphic sense—for some benefits it is hard to see how a rational and informed individual could place such high values on them. Perhaps the clearest illustration of this—"clearest" because the benefit is a simple one—concerns the home loan insurance benefit, which is valued on the average at $106 per month. Now the benefit itself is of no value, except prospectively, to anyone but a home owner, and, even then, only so long as he is in the Air Force, and consists of a payment by the Government of the insurance premium (1/2%) on the unpaid balance of a FHA home mortgage. Since the maximum mortgage covered is $30,000, this means that the Government payment can be no more than $12.43 per month when the mortgage is new, after which it will decline with the unpaid balance. The actual average Government payment (for those who have FHA mortgages) may be, perhaps, two-thirds of that (it was $5.63 in 1967), but assume, for present purposes, that it is $10 per month. How is the fact that the mean response (including the responses of many who will never collect anything under this program) is ten times the "real" value to be

explained? Surely not in terms of tastes, but, probably, in terms of deficiencies in knowledge! The fact that the median is so much lower than the mean tends to support this view; that is, the very high mean is largely attributable to "extreme" valuations. However, even the median is high enough to suggest that lack of knowledge may be an important determinant of its value.

This may also be the most convenient point at which to dispose of a potentially troublesome conceptual issue. In a few simple cases, such as the home loan insurance benefit just discussed, it appears to be reasonable to place a bound on the "real" value of a benefit; i.e., we can establish a bound beyond which a rational and informed individual would not go in evaluating a benefit. Thus, an absolute bound on the "real" value of the home loan insurance benefit is $12.43 per month, since the individual cannot obtain more than this under any conditions. But the reader must not be misled by this. This particular benefit was selected for discussion precisely because a "real" upper bound could be obtained easily which would command more or less general assent. However, even in the sense of an upper limit, we do not believe that it is, in general—for each benefit—possible to establish a meaningful "real" value.

To see what is involved, consider the benefit "personal health." The plain fact is that it is simply impossible to duplicate this precisely in the civilian world, at any price whatever; i.e., no such insurance policy is on the market from any insurance company, although some insurance companies, such as Lloyds, might be willing to underwrite special individual policies, with prices being geared to an appraisal of the situation of the individual involved. Since precise duplication is impossible, how can a value be placed on the differential elements, e.g., the exclusion from many or most civilian health policies of coverage for mental illness? How can one deal, in dollar terms, with an argument such as, "In the Air Force, I believe I will get good health care no matter what health problems I may have—and the peace of mind that this gives me is worth $1,000 a month"? It can be pointed out that the most comprehensive health insurance generally available costs less than one-tenth of this, but the unavoidable fact is that it cannot be asserted that it is completely equivalent insurance, and that the lack of equivalence could be very important to the particular individual who is asked to evaluate the benefit.

The same is true of many other benefits. For example, the Commissary may be regarded by some as very convenient. In some instances "convenience" may represent a number of factors whose value cannot be objectively determined, so even a simple benefit such as the Commissary cannot really be evaluated in objective terms. The concept of "real" or "actual" value of non-monetary benefits is not one which is likely to have much practical application within the context of this study.

4. THE TOTAL VALUE OF BENEFITS

If an individual is asked how much money would be required to make him equally well off if 15 specified benefit changes are made, there is no reason whatever to assume that, if he is rational, his response should correspond to the sum of the 15 valuations he has placed on the benefits considered individually. This lack of necessary correspondence arises from the fact that, for the response to each of the 15 benefit evaluations to be meaningful, it must be assumed that the 14 other benefits are unchanged. To illustrate, if an individual places a value of $75 per month on the dependent health benefit, and a value of $100 per month on the personal health benefit, he need not rationally evaluate both at $175, since the two answers depend on mutually inconsistent assumptions.

To show what is involved it is assumed for simplicity that perfect substitutes for these two Air Force benefits can be purchased for cash from non-Air Force sources. In fact, assume that $100 and $75 are, respectively, the individual's estimates of the market prices he would have to pay for equivalent personal health benefits and dependent health benefits. It follows that, if he had $175 instead of the two benefits, and allocated it as above, he would be precisely as well off as before. However, suppose this individual's tastes happen to be such that he would not allocate the $175 in this way, inasmuch as he would feel better off if he spent more for his family and less for himself. It follows that with $175 he would feel better off than with the two Air Force non-monetary benefits, and hence that the worth of the two benefits, considered jointly, is less than $175 to him. This phenomenon arises from the restricted choice available to the individual when he evaluates benefits separately; or, alternatively, it may be said that the Air Force allocation of resources between these two benefits does not yield the mix of services which the individual would himself choose if he had the freedom to do so. This is referred to below as the "allocation effect."

In order to evaluate the magnitude of this effect the individual was asked to evaluate all 15 benefits in combination, (as well as each of the individual benefits). For those who answered all of the 16 questions involved, the mean combined value of the 15 benefits was $1,443 per month, while the mean sum of their responses to the 15 benefit questions was $2,669 per month. Thus, the absolute magnitude of the allocation effect is, on the average, $1,226 per month. It is a measure of the extent to which, in the judgment of respondents, benefits are being provided which they would not themselves choose to purchase if they were provided with cash, in lieu of benefits, which was just sufficient to make them feel equally well off. Since the allocation effect is, in the judgment of respondents, 85% of the total valuation of the combined benefits, it is apparent that a possibility of significant inefficiency exists, in providing benefits in non-monetary form, to the extent that it is feasible to provide them in monetary form.

It is of some interest to note that the mean valuation placed on the combined non-monetary benefits by all respondents to that question was $1,554. Since respondents were instructed to include only those benefits for which they had provided dollar values, $1,554 must be a substantial understatement of what the value would have been if everyone had answered all of the 16 questions. On certain crude assumptions this understatement is at least $200, yielding a corrected combined valuation of at least $1,754. Conceptually, the estimate $1,754 for all respondents, is comparable to the observation $1,443 obtained from those who did in fact provide numerical estimates for each of the 15 benefits. There is thus strong evidence to establish that those who did not provide numerical answers to all questions, but did use P's and/or leave blanks, placed substantially higher values on those benefits to which they did respond than the individuals who responded to all of the 15 benefit questions.

5. BENEFIT VALUES BY OBJECTIVE PERSONAL CHARACTERISTICS

Do benefit valuations differ by objective personal characteristics? In other words, are there significant differences in valuation attributable to age, sex, marital status, or other characteristics which might be established without the cooperation of the respondent? In Appendix VII a number of tables are presented, each characterizing the respondents in terms of one of these personal characteristics (such as age), and showing, for each (age) group, the mean dollar valuation placed on each of the non-monetary benefits. Thus, for example, Table V shows, for each decile of the distribution of respondents by age, the mean dollar valuations placed on each benefit: dependent health, personal health, etc. However, the decile intervals themselves are shown in Table IV, for age and some other variables, so that the reader can establish, say, the point in the age distribution which differentiates the youngest 10% of the respondents from those who are older.

There is, then, one table for each of the following factors: age decile; length of service decile; sex; marital status; number of dependents; pay grade; education; income from all sources; race; religion; ethnic group;[7] Armed Forces relatives; and quarters location. Each such Table, numbered, respectively, from V through XVII, covers the mean values of the fifteen non-monetary benefits, plus training. Thus the data presented permit the significance of age, sex, etc., to be assessed as factors in explaining the observed variance in the evaluation of each benefit. What can be said on this topic?

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[7]Strictly speaking, ethnic identification, as defined by the questionnaire, cannot be established without the aid of the respondent, but it seems better to classify ethnicity with this group of factors than with the attitudinal factors discussed later.

The nature of the problems of interpretation can be illustrated in a number of ways, based on the use of the statistic F.[8] Consider, first, the relation of the variable "age" to the valuation placed on the retirement benefit, using Table IV. The value of F is about 13.3, so that the significance of age is, statistically speaking, very clearly established. Further, it is reasonable a priori that there should be a relation between age and the valuation of the retirement benefit.

The first question arises when we go beyond the mechanical application of the statistical test, and actually examine the results in more detail. During the first four age deciles, it appears, as shown in Table V, that the valuation of retirement drops substantially, and does not return to the original (first decile) level until the sixth decile is reached. Age is statistically significant in explaining the valuation of retirement, but the nature of the relationship between the two is far from clear!

Consider, as a second illustration, the valuation of the housing benefit, in the length of service table, (Table VI). It may be noted in passing that, in the total sample, the housing benefit has the lowest variance-to-mean ratio of all of the benefits (whereas retirement is highest). The F statistic turns out to be 1.98, which is only marginally significant at the .05 level, and thus leaves us in some doubt about the "statistical" relationship between length of service and the evaluation of the housing benefit. Does this conform to a priori ideas? Well, perhaps. To some extent it can be expected that length of service, being correlated no doubt with age, rank, family size, income, and living habits, would have some explanatory value. Further, more detailed examination of the data shows that the valuation falls from the first through the fourth decile, and thereafter, apparently, tends to rise. There is, at the very least, a suggestion of some systematic (i.e., non-random) effect, (not unlike that for retirement). And the suggestion can be tested. For example, if the first five length of service deciles are grouped together and compared with the longer-term half of the respondents, the F statistic is very substantially increased, and is certainly significant at the .05 level. Can length of service then be accepted with confidence as an explanatory variable for the housing benefit valuation?

Or consider the effect of marital status. As shown in Table VIII, the single people in the sample evaluated the retirement benefit at about 60% of the value placed on it by the married, and the difference is, of

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[8] F, the variance ratio, is used to test the significance of the difference between sample variances, and is computed by dividing the greater estimate of the sample variance by the lesser estimate. A detailed description of this test, its application to a one-way analysis of variance, and a table of percentage points of the F distribution may be found in Brownlee, Statistical Theory and Methodology in Science and Engineering, John Wiley and Sons, New York, 1960.

course, statistically significant. The result is surely not very surprising. In the same table, however, although the housing benefit was also evaluated at a lower level by the single, the difference cannot be shown to be significant statistically. And when it is observed that the dependent health benefit is valued at $197 by the single and $196 by the married—obviously an insignificant difference—it becomes apparent that these statistical tests cannot be relied upon to give us much insight into the fundamental relationships.

Comparisons of the kind just illustrated can be—and have been—carried out by the thousand, examining the tabulated data for each benefit to see whether it has an obvious relation to each "independent" variable, (such as age, sex, etc.), comparing one benefit with another for the same independent variable, combining and recombining the subcategories of each independent variable—all in the effort to establish possible significance. As a matter of judgment, however, it is generally inappropriate on the basis of Appendix VII data and corresponding statistical tests—no matter how much testing is done—to conclude that a given independent variable has real significance for some benefits and not for others.

Despite this statement it is not assumed that the same factors are influential for all benefits. Suppose, for example, the real situation is that differences of opinion on the value of retirement benefits are very large, while those for housing are, relatively, small—in which event it would scarcely be surprising to find, sometimes, that a given independent variable appears significant for retirement but not for housing.

It seems particularly instructive to consider the tabulation on race (Table XIII). At the .05 level race is not statistically significant for either retirement or housing. Yet examination of the whole table reveals some startling facts: for every benefit except retirement the sequence of valuation is Black-highest values; White-lowest values; Other-intermediate values. It is very difficult to believe that this regularity is an accident, no matter what statistical tests of individual benefits may show: it is, after all, necessary to keep in mind that the variability in non-monetary benefit values is likely to be inherently very large compared to any systematic factors which can be identified. Note, however, that the assertion that the differences in the present instance are non-random, is not an assertion that the underlying causal factor is race, since the differences could really be "due" to factors perhaps correlated with race, such as education, income and rank.

The most that can be hoped for, then, on the basis of these Appendix VII tabulations, is to rule out certain independent variables completely as explanatory factors. Unfortunately, there is virtually nothing that can be ruled out. For each of the following "independent" variables there is conventional statistical evidence that the variable is significant for at least some benefits: age, length of service, sex, marital status, number of dependents, pay grade, education, income, race, religion, ethnic origin, Armed Forces relatives, and quarters on-base or off, although the last is marginal.

6. VALUATION OF BENEFITS BY QUESTIONNAIRE AND BASE TYPE

Appendix Table XVIII provides a tabulation of benefit valuations by type of questionnaire employed, namely, basic, validating, educational and sequential. For every benefit except retirement the valuations obtained via the validating questionnaire are highest. 12 of the 15 benefits valuations are lowest for the sequential experiment. The evidence appears strong, therefore, that "type of questionnaire" is a significant variable. This conclusion is reinforced when it is recalled that the stratification was such that (except for Lackland) the same mix of personnel, by rank, sex, and marital status, should have been obtained from each base. Yet a doubt arises immediately: why is the retirement benefit not affected in the same way as most other benefits?

Of course, bases differed from each other in ways which were recognized in advance: some were characterized as "large" and others as "small," some as "rural" and others as "urban." These characteristics give rise to a 4-way categorization of benefit evaluations which are shown as Table XIX, in Appendix VII. For 14 of the 15 benefits "large urban" yields valuations higher than or equal to "large non-urban," although the differences are very small. Similarly, for 12 of the 15 benefits "small urban" is higher than "small non-urban." Thus there is a suggestion in the data that the distinction between urban and non-urban bases may have some significance. The same kinds of comparisons between "large urban" and "small urban," and between "large non-urban" and "small non-urban" strongly suggest that the distinction between "large" and "small" is perhaps more important.

Of course, it is obvious that the latter comparisons are clouded somewhat if type of questionnaire is not taken account of simultaneously. Therefore, it may be appropriate to compare individual bases—recognizing, of course, that sample sizes are significantly reduced thereby. Appendix Table XX presents the valuations obtained for 9 individual bases, two large urban, two large non-urban, two small urban, two small non-urban, and Lackland, all of which utilized the basic questionnaire.

Examination of this table reveals that large urban base #1 yields substantially higher valuations than large urban base #2, for 14 of the 15 benefits. Small non-urban base #14 exceeds small non-urban base #13, 13 out of 15 times. Except for retirement, Lackland valuations are substantially higher for all benefits. Finally, there is no convincing evidence of difference between large urban base #2 and small non-urban base #13—despite the statistical evidence of Tables XVII and XVIII.[9]

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[9]Of the 14 benefits other than retirement, the valuations placed on 5 of them were within $5 for the two bases in question. Of the remaining 9 benefits, 6 had lower valuations and 3 had higher valuations in Base #13.

What do these results mean? Consider bases #1 and #2. Both are classified as large and urban. Both obtained the same type of questionnaire. Both should have had the same mix of personnel, in terms of sex, pay-grade and marital status, since the same selection criteria were to be applied. Yet the evidence of significant difference between the bases is convincing. Obviously there is a serious question about causation. Perhaps--but only perhaps—there really are important differences associated with questionnaire type, base size, and the urban/non-urban distinction; but there may be additional differences between bases. The latter may be attributable to real and unmeasured differences in such factors as morale; or the bases may not be well matched in terms of sex, pay-grade and marital status, despite the careful survey administration instructions; or other potentially important variables, such as race, are not randomly distributed across bases. As for Lackland, perhaps the sole "explanation" is that E-1's are "different."

In sum, it does not appear to be possible to rule out questionnaire type, base type, or "individual base identification," as possible "explanatory" factors.

7. VALUATION OF BENEFITS BY ATTITUDINAL FACTORS

The general implication of the matters so far discussed is, on the one hand, that many factors may be at work simultaneously to influence benefit valuations, and, on the other, that factors not yet identified also may have an important influence. Among the latter may be factors which are here called "attitudinal," consisting of those factors which can be ascertained only through the response of the individual to a survey question. The factors included in this group consist of the answers to questions, previously delineated, about the likelihood that the respondent will remain in the Air Force till retirement; the reaction to various inducements which could conceivably be given to encourage personnel to remain in the Air Force; the influence of the draft on the enlistment decision; the respondent's assessment of his own understanding of each benefit; the relative attractiveness, to the respondent, of 29 features of Air Force and civilian life, respectively; and the likelihood that the respondent will utilize each of the non-monetary benefits.

Tabulations of benefit values for each of the attitudinal variables are shown in Appendix VII. With regard to probability of remaining in the Air Force till retirement, shown as Table XXI, no obvious pattern emerges. For example, the lowest valuation of dependent health occurs at a probability of 0.6, while the highest occurs at 0.7. For housing the high point occurs at a probability of 1.0, but this value is only one dollar higher than the value at a probability of 0.2. However, for retirement there is a suggestion of a pattern, rather similar to that encountered with pay-grade as the independent variable. Less marked effects may exist for other benefits, such as sick pay and education. To be sure, the number of observations at probabilities of 0.2, 0.3, 0.4, 0.6, and 0.7 are each less than 100, so perhaps great regularity should not be

anticipated. The one thing that appears clear from this table is that those who, with high probability, intend to remain in the Air Force till retirement, place very high values on the retirement benefit.

Those who were less than certain that they wished to remain in the Air Force till retirement were asked whether they could be induced to remain in the Air Force by (1) cash, (2) promotion, (3) choice of location, (4) choice of job assignments for which qualified, (5) shorter period of commitment, (6) guaranteed non-combatant status, (7) improved living conditions, (8) less severe military discipline, (9) improved recreation, and (10) some combination of the first nine. The results are shown in Table XXII. For each of the first nine inducements, the dollar values placed on each non-monetary benefit by those who said they could be induced to remain in the Air Force by cash or by promotion, etc., substantially exceed the values placed on these benefits by those who said "no," except for 2 benefits under the job assignment inducement, i.e., "yes" valuations exceeded "no" valuations 133 out of 135 times. For example, those people who said they could be induced to remain in the Air Force by "more or improved recreation (including clubs)" placed values on the 15 benefits which were, on the average, some 50% higher than the valuations of those who said they could not be induced. The corresponding figure for those who could be induced by cash was 38%. Considering the diversity of the inducements, and the multiplicity of influential factors, the uniformity of the results is striking. The meaning of these results is very far from certain, but a plausible interpretation might be that those who rate non-monetary benefits highly are more likely to be induced to remain in the Air Force as a result of a specific change in some other feature of the Air Force which is regarded as less than satisfactory (such as cash). By the same token it might be expected that, other things being equal, those who rate non-monetary benefits highly are more likely to remain in the Air Force without any changes in the Air Force.

This last hypothesis is not unlike one related to the draft, to the effect that those who joined the Air Force freely and voluntarily would be those who placed a high value on benefits, as compared with those who would not have joined in the absence of the draft. Table XXIII shows the valuations placed on benefits by those who, in response to the question, "Would you have chosen to join the Air Force if there had been no military draft," said "Yes" or "Probably" or "Probably not" or "No" or "Does not apply (was not subject to draft)." There is clearly a suggestion in the data that there is something to the hypothesis, since, for every benefit except retirement, the lowest valuation was placed on benefits by those who said either "No" or "Probably not."

It was conjectured, further, that there would be great differences between individuals in knowledge and understanding of benefits, and that this might somehow be reflected in valuations placed on benefits. The individual was asked to rate his own understanding of each benefit along the scale "no idea," "some idea," "good idea," or "complete understanding,"

and the valuations placed on benefits by each group were computed, (Table XXIV). Although the differences are not startlingly large, for every benefit except retirement and sick pay, the group with "no idea" and "some idea" place higher dollar values on benefits than the group consisting of "good idea" and "complete understanding." It is not known, of course, whether there is any correlation between this self-assessment and objectively-determined knowledge or understanding; but there is at least a warning implicit in this result: namely, that more thorough understanding of benefits, if it could be generated, may, on the average, produce reductions in the valuations placed on benefits, and hence possibly a reduction in whatever incentives they provide.

Another set of variables which might tend to indicate attitude, and, in turn, the valuations placed on benefits, consists of responses to questions about the relative merits of Air Force and civilian life. Of these, the first thirteen relate to non-monetary benefits—the original fifteen less the Base Exchange and Commissary benefits, since the latter have no counterparts in civilian life. For these thirteen benefits, valuations were computed by group, where the groups corresponded to the possible responses "far better in the Air Force," "better in the Air Force," "same in the Air Force," "worse in the Air Force" or "far worse in the Air Force." The results are shown in Table XXV. For every benefit, those who respond "far better in the Air Force" generate higher values than those who say "better in the Air Force," which, in turn, are higher than valuations by those who say "same in the Air Force." This neat progression is quite frequently and seriously upset, however, by the "worse" and "far worse" categories.

What is the meaning of these results? It is scarcely possible to doubt that there are non-random phenomena at work, even though many "far worse" samples are small; and, though there is no positive evidence of any kind, at least one plausible hypothesis can be advanced. Consider the first benefit, dependent health. What kinds of people would (1) say that health care of dependents is far worse in the Air Force than it would be in civilian life; and (2) evaluate the worth of the benefit at far above the mean of other people in the Air Force—when that mean itself may be unreasonably high? It is not unlikely that those individuals may be unusually ignorant of the conditions of civilian life, for if Air Force dependent health care which is judged to be relatively poor is deemed to be worth a great deal, then, logically, care which was thought to be equivalent to that of civilian life would be worth a good deal more than the relatively high value already placed on it. Again, therefore, there may be a hint that the lack of appropriate knowledge tends to yield high valuations of non-monetary benefits.

Respondents were also asked to assess the likelihood that they would actually use each non-monetary benefit, on the scale "very likely," "likely," "unlikely," "very unlikely" and "no idea what the benefit is." The non-monetary benefit evaluations for each group were then computed, and the results are shown as Table XXVI. The results do suggest, but

only very weakly, a positive correlation between valuation and likelihood of use. The weakness of this relationship is somewhat surprising in view of the strong theoretical presumption that, other things being equal, high probability of use will make for high valuations. Again there is little in the way of immediate evidence of the reasons for the very weak and perhaps non-existent relationship. The most likely explanation runs in terms of the near certainty that "other things" were "not equal." Every benefit was included in the question for the sake of formal completeness, but there are at least two benefits for which it should have been, for any purpose, unnecessary to ask the question, namely, food and housing. As these two benefits are described in the question, they include the corresponding monetary allowances, so that, as was even pointed out in the question itself, there should be virtually no person in the Air Force who responds to either one with anything other than "very likely." Yet 21% of the respondents to the food question, and almost 30% of the respondents to the housing question, did give answers other than "very likely." For such people it must be assumed either that understanding was lacking or, conversely, that the question was poorly formulated, so that systematic relationships of any kind between valuations and responses should not be anticipated.

8. FREQUENCIES OF ATTITUDINAL RESPONSES

Attitudinal responses may have some interest and significance beyond the question of evaluation of non-monetary benefits. It may, for example, be important to know how many people in the Air Force think they "completely understand" a given benefit, or how many think that "opportunity for advancement," say, is relatively favorable in the Air Force. The frequency of the various responses to each of the attitudinal questions has been tabulated, and is shown in Tables XXVII through XXXII, for the attitudinal questions already discussed. The following may be noted—among other things—in these tables:

a. the high concentration of responses at probabilities of 0.0, 0.5 and 1.0, to describe likelihood of remaining in the Air Force till retirement;

b. the large numbers of people who say they could be induced to remain in the Air Force by more cash, or a choice of location, etc.—including some of those who had said the probability of remaining in the Air Force was 0.0;

c. the relatively small proportion of respondents who say they would definitely not have joined the Air Force in the absence of the draft;

d. the very large differences between benefits in terms of the numbers of people who think they understand them

e. the apparent irrationality of responses to questions about the probability that the individual will use the particular benefits

f. the percentages of respondents who thought that Air Force benefits were either "better" or "far better" than their civilian counterparts are as follows for each of the 13 comparable benefits: personal health-83%; sick pay-82%; retirement benefits-79%; annual leave-79%; air travel privilege-76%; dependent health-74%; educational benefits-72%; life insurance-61%; home loan insurance-57%; Federal tax break-57%; recreation-33%; food-14%; housing-11%. In interpreting these numbers it should be kept in mind that respondents did have the opportunity to respond by saying, for any benefit, that the Air Force and civilian life were "about the same," and those who chose to do so are not included in the above figures; i.e., the complements of these numbers (e.g., 17% for personal health) includes those who responded "far worse," "worse," or "same."

The frequencies of responses to one other attitudinal question is also of interest. What are the most important factors (out of 29 contained in the Air Force-civilian comparison question) in deciding whether or not to remain in the Air Force? If each of the 29 factors were selected with equal frequency about 3.45% of the respondents should identify each factor as most important, another 3.45% should identify each factor as next most important, and an additional 3.45% should put each factor in third place. In other words about 10.3% of the total first, second, and third-place responses should be observed for each factor. Thus it may be reasonable to consider as "significant" any factor mentioned by more than 10.3% of the respondents.

The results are shown as Table XXXIII. The important factors are, in order of importance (total mentions): retirement, job satisfaction, money, dependent health, security, freedom, educational opportunity, advancement opportunity, personal health, total value of pay and other benefits, and family and social life; and these 11 factors are the only ones mentioned more than 10.3% of the time. Looking at the first place choices only, only 9 of the foregoing 11 factors received more than the average number of choices. More specifically, "personal health," and "family and social life" drop out, while "security" and "freedom" reverse their rankings. In contrast, only 0.6% (1 person out of 165) placed "the value of all non-monetary benefits" in first place, whereas 10.5% identified "money" in first place, and an additional 5.0% chose "total value of pay and other benefits." It is also worth noting that three specific non-monetary benefits appear in the first place list (more than the average number of times), namely, retirement, dependent health and educational opportunity, and account, between them, for 31.6% of the first-place choices. These results strongly indicate that there are substantial numbers of people in the Air Force to whom certain non-monetary benefits are important, relative to other attributes of Air Force life, in determining whether or not to remain in the Air Force; but it is immediately necessary to repeat the caution that the results depend on the mix of respondents, and cannot be taken to represent the Air Force as a whole.

9. OTHER TABULATIONS

Millions of hypotheses can be advanced to account for the findings up to this point, and of these literally thousands can, in principle, be checked via the available data. Furthermore, there are questions of great interest—some perhaps only marginally related to non-monetary benefits—which may, nevertheless be answerable via the survey, and about which nothing has been said, e.g., what determines the response to the question about the likelihood of remaining in the Air Force till retirement? In an effort to explore both areas simultaneously many complex cross-tabulations, involving two independent variables and a dependent variable, were prepared and examined. A small number of these are displayed in Appendix VII.

a. Differences Between Base Groups

Do the respondents from the various bases differ in their characteristics other than non-monetary benefit valuations? It is possible here to do no more than illustrate the answer. Table XXXIV shows in the body the value of the score achieved on the Air Force-civilian comparison question where the score for each part of the question is obtained by counting "1" for "far better," "2" for "better," "3" for "same," "4" for "worse" and "5" for "far worse;" and then summing over the last thirteen questions. Note that these last thirteen do not refer to monetary or non-monetary benefits as such. The maximum conceivable score is 65, corresponding to the case in which the individual says that each of the 13 attributes is "far worse" in the Air Force. A low score thus indicates the individual thinks that Air Force features identified in the last thirteen questions of the Air Force-civilian comparison are relatively good. The independent variables for this table are length of service deciles[10] (rows) and base group (columns), base groups having been used (rather than individual base) because of space limitations.

None of the cells in this table have very large populations, and some cells are small indeed, so that substantial variability in the mean scores is to be anticipated. It is apparent, nevertheless, that there is a tendency for the first five length of service deciles to have higher scores (poorer attitudes) than the second five, and for the worst (highest) scores to be observed at the fourth and fifth deciles—i.e., for those in the later part of the first enlistment. It is not immediately clear whether there are significant differences in scores between base groupings, but, by summing the underlying cell populations, it can easily be shown that, excluding Lackland, one base group had 64% of its respondents in the second five deciles of the length of service distribution, while another had only 45%. This last difference is too great to be attributed to chance, so that either there are real differences in this characteristic between the bases, or there was some bias in the selection of respondents.

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[10]Decile values are shown in Table IV, Appendix VII.

A similar tabulation (not shown) using "religion" instead of length of service as one of the two independent variables shows little, if any, difference in Air Force-civilian score between the two major religious groups; but, in terms of numbers of respondents, the ratio of Roman Catholics to Protestants varies from .38 to .60 between base groupings. Once again, there may be non-random phenomena at work, although it is not at all clear that religion will turn out to be significant variable with respect to non-monetary benefits, or even the Air Force-civilian score in question. It is also worth pointing out that the Lackland (E-1) group had substantially better (lower) scores than any other cell in any base.

A similar tabulation (not shown) was constructed with the Air Force-civilian score as the dependent variable, and the independent variables being base group and Armed Forces relatives, respectively. Small differences in the score were observed as between those who had "parents but no siblings" in the Armed Forces and those who had "siblings but no parents," the scores of the latter being more favorable to the Air Force, and mirroring the results shown earlier for non-monetary benefit evaluations. Just as importantly, the ratio between the two groups in terms of numbers of respondents varied between base groups—from a high of 2.89 to a low of 1.13—again suggesting non-random phenomena associated with bases. (If the characteristic in question were distributed randomly the ratios should be about the same for all base groups—just as in the case of religion).

Table XXXV shows the Air Force-civilian feature score by base group and by response to the draft question. Those who said "Yes" (they would have joined even if there had been no draft) clearly had lower (i.e., better) scores than anyone else, while those who said "No" clearly had the highest scores. In addition, by analysis of the underlying population counts it can be shown that there is an apparent non-randomness by base group: the ratio of number of "Yes" responses to number of "No" responses varied between bases from a high of 3.49 to a low of 1.94, meaning that there were large differences by base group in the proportion of respondents who would have joined even if there had been no draft and/or the proportion who would not have joined.

b. Relation Between Selected Benefit Valuations And Attitudinal Factors

Other analyses (not shown) were carried out using the dollar valuations of individual selected benefits, as the dependent variables. These covered retirement, education, personal health, sick pay, and housing, with the independent variables being, in each instance, base group and reenlistment probability group (the categories for the latter variable being 0; 0.1; 0.2, 0.3 or 0.4; 0.5; 0.6, 0.7 or 0.8; 0.9; and 1.0). For most of the selected benefits (and especially retirement) it appears that there is some (very weak) tendency for valuation to rise with probability of remaining in the Air Force; but it would, perhaps, be more accurate to say that the half of the respondents with higher probability tend to have

higher benefit valuations than the lower half. However, there is also some evidence that the education benefit reverses this pattern. While there is no unequivocal evidence of base-related or questionnaire-related influence on the valuation of these benefits, it may be noted that the mean probability of remaining in the Air Force till retirement does vary by base from 0.49 to 0.67.

A group of tables was prepared, still using these selected individual benefit valuations as the dependent variables, and with one of the independent variables being the probability of remaining in the Air Force, while the other was, in turn, "understanding" of the benefit in question, or the "Air Force-civilian comparison" of the benefit in question, or the likelihood that the benefit in question would be utilized. The following was observed:

- There was no apparent relation, in general, between the respondent's claimed understanding of a benefit and the dollar value placed on that benefit. However, "complete understanding" was claimed more often and "no idea" less often among those who definitely intended to remain in the Air Force than among those who definitely intended not to remain.

- There was no strong relation, in general, between the dollar valuations placed on a benefit and the response to the corresponding Air Force-civilian comparison question, although hints could be seen from time to time. However, a significantly higher percentage of those who said they would definitely remain in the Air Force than of those who would definitely not remain compared the Air Force favorably with civilian life—although there were large differences between benefits in this regard.

- There was some evidence of positive correlation between the valuation of a benefit and the probability of using that benefit. In addition, the very weak relations between benefit valuations and probability of remaining in the Air Force, varied from benefit to benefit; e.g., the relation was positive for retirement, negative for education, and not discernible at all for others. However the percentage of those definitely intending to remain in the Air Force who said it was "very likely" or "likely" that they would use a benefit always exceeded the corresponding percentage for those who definitely intended to leave the Air Force, although by very different margins from benefit to benefit. In addition it may be noted, by way of illustration, that those who definitely intended not to remain in the Air Force (till retirement) "should" have said it was "very unlikely" that they would use the retirement benefit, but, in fact, only 58% of them did so—again suggesting that there was large scale lack of understanding of benefits (in this case, "retirement") or of the question being asked.

c. Two-Variable Explanations Of Total Non-Monetary Benefit Valuations

One group of tabulations was prepared using the total valuation of the non-monetary benefits as the dependent variable, and using, as one of the independent variables, the probability of remaining in the Air Force till retirement. The other independent variable was, in turn, length of service, education, relatives in the Armed Forces, draft influence, and response to the various inducement questions. Some of the highlights of the results are as follows:

- The lowest valuations of total non-monetary benefits tend to occur in the second, third and fourth deciles of length of service, for all levels of probability of remaining in the Air Force. This corresponds to the interval from 6 to 30 months length of service.

- There is no obvious relationship between the valuation of total non-monetary benefits and length of service as such, once account is taken of the probability of remaining in the Air Force—but many cells are, of course, very small.

- At every level of probability of remaining in the Air Force the dollar valuation of total non-monetary benefits tended to be higher for those with a post-graduate degree than for those without. Nevertheless those with post-graduate degrees were somewhat better represented in the group with zero probability of staying in the Air Force than among those who were certain to remain in the Air Force.

- The total valuation of non-monetary benefits does not appear to be influenced by relatives in the Armed Forces, but seems to be a function of probability of remaining in the Air Force. It is also remarkable that respondents with "parent(s) but no siblings" in the Armed Forces constituted 44% of those who said there was no chance of remaining in the Air Force till retirement, and 60% of those with 0.1 probability of remaining, while they were only 17% of those who said it was certain they would remain in the Air Force. (See Table XXXVI).

- The total valuation of non-monetary benefits does not seem to be a function of the response to the question about draft influence. However, the underlying population counts show that those who said "No" (they would not have joined the Air Force in the absence of the draft) constitute 43% of those who definitely intend to get out, but only 7% of those who definitely intend to stay in. Another and equally important aspect of the same phenomenon is suggested by the fact that, of those who said they would have joined in the absence of the draft, 8% said "get out as soon as possible" and 46% said "stay in till retirement," while the corresponding percentages for those who would not have joined in the absence of the draft were 49% and 17%. (See Table XXXVII).

- For those who responded "Yes" to any question about hypothetical inducements to remain in the Air Force, including "some combination" of inducements, the total valuation placed on non-monetary benefits was substantially higher than for those who said "No," at all levels of probability of remaining in the Air Force. Among those who had said that there was no chance they would remain in the Air Force, the single inducement with the greatest number of "yeses" was choice of location; and it was, in fact, extremely important at all levels of probability of remaining in the Air Force. Among those with 0.9 probability of remaining in the Air Force, a very slightly greater number of yeses was obtained for "promotion." Overall, the inducements with the greatest number of yeses ranked as follows: location, job assignment, cash and promotion, with small and perhaps insignificant differences between them. The least effective inducement, in terms of number of yeses, was non-combatant status. However, only 57% of those who had said there was no chance of remaining in the Air Force said they could be induced to remain by a combination of the inducements listed in the questionnaire, while 91% of those with probability 0.9 could be induced to remain. (Table XXXVIII).

d. Two-Variable Explanations Of Expected Air Force Earnings

A number of tabulations were prepared using as the dependent variable the respondent's expectations of monthly cash earnings if he were to remain in the Air Force. In each, one of the independent variables was "probability of remaining in the Air Force till retirement," while the other was, in turn, length of service, education, Armed Forces relatives and draft influence. The major implications of this group of tabulations are:

- There is no obvious relationship between expected Air Force cash earnings on the one hand, and, on the other, length of service and probability of remaining in the Air Force.

- Expected Air Force cash earnings rise with education, at all levels of probability of remaining in the Air Force.

- Those respondents with "sibling(s), no parents" in the Armed Forces had somewhat higher expectations of Air Force earnings than those with "parent(s), no siblings," at all levels of probability of remaining in the Air Force, except probability 1.0. This effect is not strong.

- There is no obvious relation between expected Air Force cash earnings and draft influence.

e. Two-Variable Explanations Of Expected Civilian Earnings

Still another group of tabulations dealt with expectations of earnings in the civilian world as the dependent variable. The salient findings were:

- While the picture is somewhat confused by the 2nd, 3rd and 4th deciles of length of service, (6 - 30 months), there is a positive correlation between that variable and expected civilian earnings. There is no obvious relation between expected civilian earnings and probability of remaining in the Air Force.

- There is a strong positive relationship between educational level and civilian earnings expectations. There is also a suggestion in the data that (1) at the post-graduate level, the probability of remaining in the Air Force rises as civilian earnings expectations fall, and (2) at lower educational levels the probability of remaining in the Air Force rises with expectations of civilian earnings.

- The civilian earnings expectations of those with "sibling(s), no parents" in the Armed Forces were, on the average, about 10% higher than for "parent(s), no siblings."

- For those who would definitely have joined the Air Force in the absence of the draft, the expectations of civilian earnings rise with probability of remaining in the Air Force. This effect is not obviously present for other categories of response to the draft influence question.

An analysis was carried out with "expected civilian earnings, assuming no Air Force training" as the dependent variable. This showed the same pattern—or absence of pattern—of relationships as the variable just discussed, namely, "expected civilian earnings." In other words, the imputed value of training (i.e., the difference between the two expected earnings figures) appeared to be a random variable, sometimes positive and sometimes negative, and to be unrelated to any of the following: probability of remaining in the Air Force, education, draft influence, length of service, or Armed Forces relatives.

f. Two-Variable Explanations Of Probability Of Remaining In The Air Force

What about the probability of remaining in the Air Force as a dependent variable? Some analyses were carried out to see whether it appeared to depend on Air Force relatives, draft influence, religion, ethnic group, education, length of service, and the more important specific elements of the Air Force-civilian comparison. The main results were:

- There is a very strong relationship between probability of remaining in the Air Force and draft influence. Those who said "Yes" (they would have joined the Air Force even if there had been no draft) had the highest probability, of course, followed, in order, by those who said "Probably, "Probably Not," "Does Not Apply," and "No." Those who said "Yes" had a mean probability of remaining in the Air Force of 0.69, versus 0.31 for those who said "No."

- There is a definite relationship between probability of remaining in the Air Force and Armed Forces relatives, although the differences are not as marked as for the draft influence. For each response to the draft question, the highest probability of remaining in the Air Force was observed for "sibling(s), no parents," and the lowest for "parent(s), no siblings." Thus, Table XXXIX shows that, taking account of only these two independent variables, the observed mean probability of remaining in the Air Force varies from a high of 0.80 (for those who would have joined in the absence of the draft, and whose Armed Force relatives were "sibling(s), no parents") to a low of 0.16 (for those who would not have joined in the absence of the draft, and whose Armed Forces relatives were "parent(s), no siblings").

- There may be a small effect of ethnic group on probability of remaining in the Air Force, the high being 0.64 for "British" and the low 0.48 for "Polish." However, when account is taken of this variable, the effects of religious group appears non-existent.

- There appears tc be a significant positive relationship between probability of remaining in the Air Force and education. Those with post-graduate degrees who would have joined in the absence of the draft had a probability of 0.78, versus those with high school education who would not have joined but for the draft, with a probability of 0.27. Furthermore, those with no more than high school education constituted 53% of those who would have joined the Air Force in the absence of the draft, but were only 35% of those who would not have joined but for the draft; i.e., those who joined the Air Force because of the draft tended to be more highly educated.

- For those who have been in the Air Force more than 48 months there is a positive correlation between probability of remaining in the Air Force and length of service. The relationship for those with less than 48 months service is unclear.

- Of those who thought "retirement" is the most important of the 29 Air Force-civilian comparisons, 24% had already been in the Air Force more than 20 years, and an additional 68% were in the second or later enlistments. For these people the probability of

remaining in the Air Force till retirement was about 0.97. Only 8% of those who thought this the most important factor were in the first enlistment—although, for the total sample this factor was "most important" more often than any other.

- For those in the 7th, 8th, 9th and 10th length of service deciles, i.e., 13 or more years of service, the most important factors (in the decision to remain in the Air Force) were "retirement" (by a wide margin), followed by "job satisfaction" and "security." Those few long-termers who mentioned "freedom" as most important had a lower probability of remaining in the Air Force than those who mentioned any of the other eight factors most frequently identified as "most important." (See Table XL).

- In the 1st decile of length of service, (up to 6 months), first choices were well distributed among the nine features most frequently identified as "most important." However, the most often mentioned was "education," followed by "cash." In this decile the highest probability of remaining in the Air Force was observed among those few who said "retirement" was most important, and the lowest probability among those who said "freedom" was most important.

- In the 2nd, 3rd, 4th and 5th deciles (7-48 months) the most frequently mentioned factor was "freedom," followed by "job satisfaction" and "cash." The lowest probability of remaining in the Air Force occurred among those who identified "freedom" as most important. Indeed, the lowest probability of remaining in the Air Force, for any cell of any table, (0.075) was observed for the 61 people of the 5th length of service decile who identified "freedom" as most important.

- In the 6th decile—consisting of people with between 49 and 80 months of service—the most frequently mentioned factors were job satisfaction and cash. The lowest probability of remaining in the Air Force for this decile, as for all others, was for those who identified "freedom" as most important.

g. Miscellaneous Analyses

A number of tabulations were made relating to important features of the Air Force, other than non-monetary benefits, (e.g., opportunity for advancement), frequently mentioned as most important in reaching a decision about remaining in the Air Force. For every feature studied a higher percentage of those who intended to remain in the Air Force than of those who intended to get out said the Air Force was better than civilian life. For example, for the feature "job satisfaction," among those who intended to remain, five times as many said the Air Force was "better" or "far better" as said the Air Force was "worse" or "far

worse;" whereas among those who intended to get out the corresponding ratio was one-eighth! However, this general finding must not be interpreted to mean that a majority of those who intended to remain in the Air Force thought the Air Force was better in every particular: for example, the ratio of Air Force "better" and "far better" to "worse" and "far worse" was only about 0.3 for the feature "freedom;" but the corresponding ratio for those who intended to get out was only about 0.04. This general finding applies to "job satisfaction," "freedom," "security," "opportunity for advancement," "family and social life," "cash earned" and "total cash and other benefits." From a comparison of the last two tabulations, shown as XLI and XLII, respectively, it can be seen that, at every level of probability of remaining in the Air Force, the percentage of those who said Air Force "better" or "far better" was substantially higher for "total cash and other benefits," than for "cash," implying a general awareness or belief that Air Force non-monetary benefits were superior to those in civilian life.

The final set of tabulations that was prepared concerned the incidence of the "P" response and "blank" response, respectively, to the non-monetary benefit evaluation questions. Table XLIII shows the incidence of P's and blanks for each benefit. It is quite obvious that respondents found certain questions particularly difficult to deal with. In two cases—home loan insurance, and Federal tax break—the balance between P's and blanks suggests, and other evidence makes clear, there was far less than the average amount of knowledge of their meaning or content. For certain other benefits the incidence of P's was marked: those related to health (dependent, personal and sick pay); retirement; and annual leave. For SGLI and education the incidence was also far from negligible. In view of the comparative open-endedness of health expenses there could be some—but not much—rational justification for the "P" response in these cases; but what is to be said about SGLI, which cannot possibly be worth more than $15,000, plus some modest amount, say $5,000, for burial-related expenses, for a lump sum, one time payment of $20,000 (which, with a life expectancy of 2 years, might be worth, say, $1,000 per month).

A still more illuminating tabulation of the P's is shown in Table XLIV, by benefit and questionnaire type. First, it may be observed that the incidence of P's at Lackland, (i.e., primarily among E-1's), is extremely high, being—for many benefits—3 or more times that for the sample as a whole. Further, the incidence of blanks at that base is extremely low for almost all benefits, but the reason is not clear. Secondly, the incidence of P's with the validating questionnaire is extremely low, particularly when it is recalled that, for these questionnaires, all the responses for the highest category (over $10,000 per month) were counted as P's, whereas for all other questionnaires the respondent had to write "P"—which, he had been instructed, was to mean $1,000,000 per month or more! It is clear that, if the questionnaire type had no influence, the incidence of P's should have been higher for the validating, not lower. It is also apparent from the Table that there is

a very minor offset to this effect in the incidence of responses over $2,500. Finally, it is noted that the incidence of P's is slightly lower, in general, for the basic questionnaire than for the sequential or educational. The explanation for this phenomenon is, almost certainly, the markedly higher proportion of blanks in the basic questionnaire, which, in turn, is probably due to the high incidence of non-response to Part II of the questionnaire in one of the bases receiving the basic questionnaire.

10. REGRESSION ANALYSIS

a. Preliminary Steps

The foregoing findings are certainly complex and confusing, and possibly inconsistent as well. The possibility of inconsistency arises from the fact that the explanatory factors are being looked at one or two at a time, yet the conclusion which seems completely clear is that there are a multiplicity of factors at work simultaneously, whether one is attempting to "explain" the valuation of a non-monetary benefit or the probability of remaining in the Air Force till retirement.

Consider, as a case in point, the facts that (1) there appears to be a relationship between the draft question response and the valuation of non-monetary benefits; (2) there appears to be a relationship between "Armed Forces relatives" responses and the valuation of non-monetary benefits; and (3) there appears to be a relationship between the two "independent" factors just mentioned, i.e., between "draft" responses and "Armed Forces relatives" responses. Are there indeed effects of both variables on the valuation of non-monetary benefits, or is only one influential, or is there a more basic third factor—say, "probability of remaining in the Air Force"—which affects both? Or do both factors influence "probability of remaining in the Air Force," which, in turn, influences the evaluation of non-monetary benefits?

When so many factors are at work simultaneously the most promising way to make inferences from the data may be via regression analysis. Even this is a very faint hope, because regression analysis tends to break down when many variables must be used: it is almost impossible to avoid serious correlation between the independent variables in such circumstances. Nevertheless the effort was made.

Before presenting the numerical results of this effort it is important to point out that the foregoing results were used in various ways to formulate the regression problem. To illustrate: after careful study of the preceding data it was hypothesized that the population of respondents with less than 48 months' service might be importantly different from those with longer service—a hypothesis which might well have been formulated in advance. This hypothesis led to the introduction into the regression analysis, of two variables, rather than one, to represent "length of service."

Similarly, the foregoing results were used to help make decisions about such matters as: should 14 variables be permitted to enter into the regression analysis to represent the 14 bases which provided responses? Should each of the 9 ethnic groups differentiated in the questionnaire be permitted to enter the regression individually? What about the 4 possible responses to each of the 15 questions about non-monetary benefit understanding? Obviously it was necessary to eliminate some factors judgmentally, since the number of candidates quickly became astronomical.

Nevertheless, while judgments about definition of variables (e.g., the grouping of responses) were, in some instances, made entirely in terms of the foregoing analysis, in no case was a variable dropped out entirely by virtue of that analysis. Instead a small number of trial regressions were undertaken in order to make "final" judgments. To illustrate: in a few trials, all 14 responding bases were permitted as independent explanatory variables, but this preliminary regression analysis suggested that this was not a promising way to categorize bases. Most bases had coefficients which were not statistically significant. Close study of these trials also suggested that the distinctions between urban and non-urban, and between large and small, would not prove to be statistically significant within a multiple regression framework. This left as the only promising basis of categorization the distinction between questionnaire types.

In sum, the results presented earlier, together with the results of some preliminary regressions, were used in a judgmental fashion to (1) eliminate some possible explanatory factors, and (2) help define those that remained—the candidate variables—in a concrete and explicit way for purposes of regression analysis. This point is being emphasized because general experience with regression analysis clearly indicates that apparently minor differences in definition or formulation can have quite marked influence on regression results, and may well cause a hypothesis to be rejected which is, in fact, true. Thus, the hypothesis that there is a significant difference between urban and non-urban bases may, in fact, be true, but was, as a practical matter, rejected because it was not possible to study very many regression formulations—one of which might well have supported the hypothesis—although the actual trials did not.

b. Definition Of Candidate Variables

For the regression analysis whose results are presented below, the following variables were defined:

Y_i = the natural logarithm of the dollar valuation placed on the i-th non-monetary benefit, i = 1, 2, ..., 15.

Y_{16} = the probability of remaining in the Air Force till retirement.

X_i = the likelihood that benefit i (i = 1, 2, ..., 15) will be used; where the variable takes on the value 5 for a response of "very likely," 4 for "likely," 3 for "unlikely," 2 for "very unlikely," 1 for "no idea."

X_{16} = 1 for a validating questionnaire, 0 for all other

X_{17} = 1 for a sequential questionnaire, 0 for all other

X_{18} = 1 for an educational questionnaire, 0 for all other

X_{19} = length of service in months, if less than 48; otherwise 0.

X_{20} = length of service in months, if greater than or equal to 48; otherwise 0.

X_{21} = number of dependents

X_{22} = educational level—a number from 1 to 6, corresponding to the 6 questionnaire categories from "Elementary school" up to "Post-graduate degree."

X_{23} = 1 for Roman Catholic, 0 for all other

X_{24} = 1 for British, 0 for all other

X_{25} = 1 for German, Italian and "Other European," 0 for all other

X_{26} = 1 for African and Latin-American, 0 for all other

X_{27} = 1 if Armed Forces relatives include parents, 0 for all other

X_{28} = 1 if Armed Forces relatives include brothers/sisters, 0 for all other

X_{29} = 0 if female, or if male and response to draft question is "No;" 1 if male and response is "Probably not;" 2 if male and response is "Probably;" 3 if male and response is "Yes" or "Does not apply."

X_{30} = a score based on identification of the three most important factors in deciding whether to remain in the Air Force, and the Air Force-civilian comparisons for these factors. For Air Force "far better" score 1; for "better" score 2; for "same" score 3; for "worse" score 4; for "far worse" score 5. Then weight scores for the three most important factors by 3, 2 and 1, respectively, and sum. The maximum weighted score is 30. Low score indicates "Air Force better."

X_{31} = the sum of the "no" responses to the inducement question, running from 0 to 10.

X_{32} = a score based on "understanding" responses concerning the 15 non-monetary benefits. Score 1 for "no idea," 2 for "some idea," 3 for "good idea," 4 for "complete understanding;" and sum over all benefits, giving a maximum score of 60.

X_{33} = a score based on the Air Force-civilian comparison of the 13 features unrelated to compensation, monetary or otherwise, including freedom, job satisfaction, opportunity for advancement, etc. Score 1 for Air Force "far better, 2 for "better," 3 for "same," 4 for "worse," 5 for "far worse," and sum. Maximum score 65.

X_{34} = 1 if male, 0 otherwise.

X_{35} = the natural logarithm of the sum of expected USAF cash earnings and the value placed on total USAF non-monetary benefits.

X_{36} = the natural logarithm of the sum of expected civilian cash earnings and the value placed on total civilian non-monetary benefits.

X_{37} = the natural logarithm of cash earnings expected while in USAF

The numerical analysis reported on below involved, then, a total of 53 variables. The variables X_i ($i = 1, 2, \ldots, 37$) were independent variables only, while the variables Y_i ($i = 1, 2, \ldots, 16$) were dependent variables and—under some conditions—independent as well. Before describing the analysis, however, it may be appropriate to discuss the absence of certain variables which, in some sense, are obvious candidates for inclusion; e.g., age, marital status, pay grade. A number of possibilities of this type were dropped on the grounds that they had to be so highly correlated with independent variables already defined, that it would not be possible to have confidence in the results if they were included. To be sure, it was a matter of judgment that excluded, say, pay grade, and included such correlated factors as length of service and education—perhaps pay grade could have been utilized as a substitute for both.

This is not to deny that, by adding pay grade, age, etc., to the existing list of independent variables, it would be possible to achieve higher correlation coefficients; but, since the objective here is understanding rather than prediction, it seemed more important to achieve results which would not have undue difficulties of interpretation.

A stepwise regression program was used to obtain a regression equation for each of the Y_i ($i = 1, 2, \ldots, 16$). Subject to certain restrictions any of the 53 variables were permitted to "come in" as explanatory factors, and no variables were "forced in." The restrictions adopted were as follows:

(1) With Y_i ($i = 1, 2, \ldots, 15$) as the dependent variable, only X_i ($i = 1, 2, \ldots, 15$) was permitted to enter out of the 1st 15 X's; i.e., X_j was ruled out if $j \neq i$.

(2) For Y_i (i = 1, 2, ..., 15) as a dependent variable, Y_j (j = 1, 2, ..., 15) were deleted as independent variables.

c. Regression Results

The results of the application of the regression program for variables Y_i (i = 1, 2, ..., 15) are shown as Table III. Variables whose coefficients had t-values of less than 1.96 are not shown.[10] Thus, the first equation in the Table should be interpreted as

$$\begin{aligned} Y_1 = \; & 8.50 + 0.125X_1 + 0.409X_{16} - 0.364X_{18} \\ & - 0.00256X_{20} + 0.140X \quad - 0.173X_{22} \\ & + 0.380X_{26} - 0.197X_{28} - 0.003X_{31} \\ & + 0.574X_{34} + 0.604X_{35} - 0.177X_{37} \end{aligned}$$

even though the monetary variables are defined as natural algorithms.[11]

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[10]When the t-value exceeded 1.96 this indicated that the null hypothesis—that the coefficient in question was zero—could be rejected at the 95% confidence level. This value of t is taken from the cumulative normal distribution, which t approaches in the limit, and which is appropriate with sample sizes of more than 120. See Brownlee, op. cit., pp. 280-284.

[11]The monetary variables have enormous range compared to any other variables used: thus, for example, the number of dependents may run from 0 to 6, while the valuation of a benefit may run from $0 to $2500 (or more in the case of retirement). It is apparent—and experimentation confirms—that a linear relation between such variables will not go far to "explain" anything. The practical choice was therefore between (a) assuming multiplicative relationships, putting all variables in logarithmic form, (b) using higher order moments of the independent variables, and (c) defining certain variables as logarithms. The first possibility was rejected because so many of the independent variables had quite arbitrary scales to start with, e.g., education, draft influence, attitudes to the Air Force, ethnic group, and so on; and it was felt that, to impose an additional transformation on these variables might make them all but unintelligible. The second possibility was rejected because, considering all of the variables, it introduced too many possible forms to be explored, and there would not even be an a priori test of the reasonableness of the signs of the coefficients. The third possibility—to introduce logarithmic transformations of variables whose range appeared to present a problem (i.e., all money variables)—seemed to be the simplest and most reasonable way to introduce non-linearity, and was therefore adopted.

TABLE III: REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS FOR 15 NON-MONETARY BENEFIT EQUATIONS

INDEPENDENT VARIABLES		DEPENDENT VARIABLES					
		Dependent Health (Y_1)		Personal Health (Y_2)		Sick Pay (Y_3)	
		Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Intercept		8.50	0.0344	1.58		0.963	
Use prob.	X_1	0.125					
Use prob.	X_2			(+)			
Use prob.	X_3					0.169	0.0457
USAF career pb.	Y_{16}						
Valid. quest.	X_{16}	0.409	0.101	0.553	0.0855	0.560	0.108
Sequ. quest.	X_{17}						
Educ. quest.	X_{18}	-0.364	0.163	(-)			
Service < 48 m.	X_{19}						
Service ≥ 48 m.	X_{20}	-0.00256	0.000520	-0.00216	0.000380	-0.00130	0.0048
No. dependents	X_{21}	0.140	0.0327				
Educ. level	X_{22}	-0.173	0.0373	-0.133	0.0316	-0.198	0.0397
R. C. religion	X_{23}	(+)		0.189	0.0756		
British	X_{24}	(-)		(-)		-0.298	0.116
German	X_{25}						
African	X_{26}	0.380	0.138	0.454	0.117	0.324	0.148
Parents	X_{27}	(+)					
Siblings	X_{28}	-0.197	0.0830	(-)		-0.178	0.0891
Draft infl.	X_{29}						
Imp. factors	X_{30}						
Inducements	X_{31}	-0.0300	0.0145	-0.0339	0.0123	-0.0671	0.0156
Understanding	X_{32}	(-)		(-)		(-)	
A.F./civ. comp.	X_{33}			(-)		(-)	
Male	X_{34}	0.574	0.160			(-)	
A.F. cash & ben.	X_{35}	0.604	0.0732	0.650	0.0625	0.504	0.0429
Civ. cash & ben.	X_{36}			(+)		(+)	
A.F. cash	X_{37}	-0.177	0.0757	-0.219	0.0647		
Corr. coeff.		0.458		0.458		0.426	
Stand. error		1.33		1.14		1.43	

TABLE III: REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS FOR 15 NON-MONETARY BENEFIT EQUATIONS (CONT.)

INDEPENDENT VARIABLES		DEPENDENT VARIABLES					
		Commissary (Y_4)		Base Exchange (Y_5)		Food (Y_6)	
		Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Intercept		2.09		2.49		2.53	
Use prob.	X_4	0.127	0.0412				
Use prob.	X_5			0.112	0.0510		
Use prob.	X_6					(+)	
USAF career pb.	Y_{16}						
Valid. quest.	X_{16}	0.475	0.0837	0.648	0.0967	0.296	0.0813
Sequ. quest.	X_{17}	(-)		-0.335	0.103		
Educ. quest.	X_{18}						
Service < 48 m.	X_{19}						
Service ≥ 48 m.	X_{20}	-0.00163	0.00440	-0 00142	0.000460	(-)	
No. dependents	X_{21}	0.114	0.0247	(+)			
Educ. level	X_{22}	-0.222	0.0315	-0.167	0.0364	-0.271	0.0298
R. C. religion	X_{23}	(+)					
British	X_{24}	-0.248	0.0899			(-)	
German	X_{25}	(+)		(+)			
African	X_{26}	0.241	0.115	0.487	0.130	0.389	0.111
Parents	X_{27}	(+)					
Siblings	X_{28}	(-)		(-)		(-)	
Draft infl.	X_{29}						
Imp. factors	X_{30}						
Inducements	X_{31}	-0.0415	0.0126	-0.0470	0.0143	(-)	
Understanding	X_{32}	-0.00996	0.00417	-0.0136	0.00469	-0.0100	0.00363
A.F./civ. comp.	X_{33}	-0.0112	0.00423	-0.0201	0.00489	(-)	
Male	X_{34}	(-)		-0.427	0.150	(-)	
A.F. cash & ben.	X_{35}	0.428	0.0336	0.537	0.0698	0.414	0.0314
Civ. cash & ben.	X_{36}	(+)		0.0578	0.0251	(+)	
A.F. cash	X_{37}	(-)		-0.160	0.0716		
Corr. coeff.		0.485		0.477		0.428	
Stand. error		1.11		1.26		1.08	

TABLE III: REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS FOR 15 NON-MONETARY BENEFIT EQUATIONS (CONT.)

INDEPENDENT VARIABLES		DEPENDENT VARIABLES					
		Housing (Y_7)		Recreation (Y_8)		Education (Y_9)	
		Coeffi-cient	Stand-ard error	Coeffi-cient	Stand-ard error	Coeffi-cient	Stand-ard error
Intercept		1.86		1.38		1.75	
Use prob.	X_7						
Use prob.	X_8			0.262	0.0475		
Use prob.	X_9					0.503	0.0514
USAF career pb.	Y_{16}						
Valid. quest.	X_{16}	0.236	0.0663	0.762	0.118	0.802	0.125
Sequ. quest.	X_{17}					(-)	
Educ. quest.	X_{18}						
Service < 48 m.	X_{19}						
Service > 48 m.	X_{20}			-0.00190	0.000490	-0.00419	0.00630
No. dependents	X_{21}	0.0454	0.0164	(-)			
Educ. level	X_{22}			-0.224	0.0437	-0.361	0.0474
R. C. religion	X_{23}					(+)	
British	X_{24}			(-)		-0.282	0.134
German	X_{25}	0.150	0.0553	(-)		(+)	
African	X_{26}	0.228	0.0945	0.706	0.161	0.752	0.173
Parents	X_{27}						
Siblings	X_{28}	-0.108	0.0538	-0.256	0.0976	-0.343	0.103
Draft infl.	X_{29}						
Imp. factors	X_{30}						
Inducements	X_{31}			-0.0344	0.0173	-0.0411	0.0182
Understanding	X_{32}	(-)		(-)		-0.0128	0.00623
A.F./civ. comp	X_{33}	-0.00685	0.00315	-0.0283	0.00600	(-)	
Male	X_{34}	(-)		(-)		-0.611	0.196
A.F. cash & ben.	X_{35}	0.345	0.0485	0.373	0.0469	0.703	0.0910
Civ. cash & ben.	X_{36}			(+)			
A.F. cash	X_{37}	0.115	0.0498	(-)		-0.303	0.0942
Corr. coeff.		0.503		0.420		0.531	
Stand. error		0.887		1.57		1.66	

TABLE III: REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS FOR 15 NON-MONETARY BENEFIT EQUATIONS (CONT.)

INDEPENDENT VARIABLES		DEPENDENT VARIABLES					
		Life Insurance (Y_{10})		Home Loan Insurance (Y_{11})		Travel (Y_{12})	
		Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Intercept		2.61		2.19		2.56	
Use prob.	X_{10}	(+)					
Use prob.	X_{11}			0.0232	0.0437		
Use prob.	X_{12}					0.313	0.0417
USAF career pb.	Y_{16}						
Valid. quest.	X_{16}	0.750	0.0953	0.965	0.126	0.990	0.114
Sequ. quest.	X_{17}					-0.291	0.121
Educ. quest	X_{18}						
Service < 48 m.	X_{19}						
Service ≥ 48 m.	X_{20}	(-)		-0.00371	0.000530	-0.00199	0.000570
No. dependents	X_{21}					-0.121	0.0334
Educ. level	X_{22}	-0.228	0.0358	-0.412	0.0467	-0.214	0.0422
R. C. religion	X_{23}	(+)		0.292	0.112	(+)	
British	X_{24}	0.209	0.102	(-)		-0.290	0.120
German	X_{25}						
African	X_{26}	0.429	0.132	0.640	0.173	0.594	0.155
Parents	X_{27}						
Siblings	X_{28}	(-)		-0.373	0.105	(-)	
Draft infl.	X_{29}						
Imp. factors	X_{30}						
Inducements	X_{31}	-0.0392	0.0133	(-)			
Understanding	X_{32}	-0.0113	0.00434			-0.0149	0.00558
A.F./civ. comp.	X_{33}	-0.0144	0.00481	-0.0222	0.00613	-0.0225	0.00554
Male	X_{34}	(-)		(-)		-0.499	0.179
A.F. cash & ben.	X_{35}	0.381	0.0373	0.648	0.0921	0.548	0.0815
Civ. cash & ben.	X_{36}			(+)		(+)	
A.F. cash	X_{37}	(-)		-0.304	0.0955	-0.226	0.0844
Corr. coeff.		0.440		0.487		0.528	
Stand. error		1.27		1.68		1.49	

TABLE III: REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS FOR 15 NON-MONETARY BENEFIT EQUATIONS (CONT.)

INDEPENDENT VARIABLES		DEPENDENT VARIABLES					
		Retirement (Y_{13})		Leave (Y_{14})		Tax Break (Y_{15})	
		Coefficient	Standard erro	Coefficient	Standard error	Coefficient	Standard error
Intercept		-0.817		1.66		0.99	
Use prob.	X_{13}	0.111	0.0455				
Use prob.	X_{14}						
Use prob.	X_{15}					0.309	0.0352
USAF career pb.	Y_{16}	0.0690	0.0191				
Valid. quest.	X_{16}	0.379	0.111	0.582	0.106	0.711	0.115
Sequ. quest.	X_{17}			(-)			
Educ. quest	X_{18}	(+)					
Service < 48 m.	X_{19}						
Service ≥ 48 m.	X_{20}	0.00178	0.000610	(-)		-0.00184	0.000470
No. dependents	X_{21}						
Educ. level	X_{22}	(+)		-0.107	0.0391	-0.181	0.0422
R. C. religion	X_{23}	(+)				(+)	
British	X_{24}					-0.327	0.123
German	X_{25}	(-)		(+)		(+)	
African	X_{26}			0.325	0.145	0.319	0.158
Parents	X_{27}						
Siblings	X_{28}	-0.229	0.0919			(-)	
Draft infl.	X_{29}						
Imp. factors	X_{30}						
Inducements	X_{31}	-0.0649	0.0175	(-)		(-)	
Understanding	X_{32}			-0.0124	0.00472	(-)	
A.F./civ. comp.	X_{33}					-0.0240	0.00558
Male	X_{34}			(-)		(-)	
A.F. cash & ben.	X_{35}	1.21	0.0826	0.663	0.0762	0.443	0.0459
Civ. cash & ben.	X_{36}	-0.0632	0.0291	(+)		(+)	
A.F. cash	X_{37}	-0.523	0.0837	-0.2149	0.0800		
Corr. coeff.		0.633		0.381		0.445	
Stand. error		1.49		1.41		1.53	

For the 16th regression equation, dealing with the probability of remaining in the Air Force till retirement, the result was:

$$Y_{16} = 0.574 + 0.00131X_{20} - 0.00928X_{30} - 0.029X_{31} + 0.0277X_{22}$$
$$- 0.00610X_{33} + 0.0175X_{29} + 0.0194X_{21} + 0.0199Y_{13}$$
$$- 0.00248X_{19} - 0.00152Y_{2} + 0.0782X_{34} + 0.00178X_{32}$$

For this regression the correlation coefficient was 0.83 and the standard error of estimate 0.22.

Considering the complexity of the interrelations (as demonstrated by earlier results), and considering, too, the difficulty of the subject-matter of the questionnaire, and the known handicaps imposed by the actual survey administration, there is a remarkable degree of consistency and reasonableness associated with the results. Some of these aspects of the results can be summed up as follows:

(1) For each of the 15 non-monetary benefit regressions an extremely important variable in predicting the dependent variable was what might be called the respondent's total economic expectations if he were to remain in USAF, where the variable in question is defined more precisely as the average amount of cash the respondent expects to earn if he remains in USAF till retirement, plus the value he has placed on the totality of USAF non-monetary benefits. The higher the individual's economic expectations the more he values any given non-monetary benefit.

(2) For each of the 15 non-monetary benefits the type of questionnaire does enter as a quite significant variable: specifically, the validating questionnaire yields higher (corrected) values of the non-monetary benefits than any of the others. In two cases (benefits) the sequential questionnaire also showed up as significantly lower than the basic or educational. Although there is no real evidence, it may not be a coincidence that, in only one benefit—the first—the educational questionnaire was significant (and, as it happens, generated lower values than any other); i.e., perhaps the educational package was viewed as too difficult to use, or not informative enough, after the first use.

(3) For each of the 15 non-monetary benefits except retirement the respondents' education was significant. In each of the 14 instances, the higher the education of the respondent the lower the value placed on the non-monetary benefit.

(4) For each of the 15 non-monetary benefits except retirement the respondents' "ethnic group" was significant. In each of the 14 instances, the group which identified itself as being of African or Latin-American origin placed higher values on the benefits than any other. In addition, for six benefits, those of declared British extraction had significantly lower valuations than anyone else.

(5) In 10 of the 15 equations, probability of use of the benefit showed up as a significant explanatory factor (and, at lower t values than those required for inclusion in Table III, in an additional 3 equations). In every instance the higher the probability of use the higher the value placed on the benefit. Only for "housing" and "leave" was there no sign of significance.[12]

(6) In 8 of the 15 equations, respondents with siblings in the Armed Forces showed up as a significant factor in explaining the value placed on non-monetary benefits; and, at lower than acceptable t levels, an additional 6 showed up. In every instance the effect was to reduce the valuation of non-monetary benefits. In the remaining benefit (leave) siblings did not show up at all.

(7) In only one instance—dependent health—did males tend to place a higher value on a benefit than females. In 3 benefits males were significantly lower, as shown in the Table; but in an additional 9 benefits, the negative male effect showed up at lower than acceptable t levels. For two benefits, retirement and personal health, sex did not enter at any t level.

(8) For 9 benefits, the number of "no" responses to inducements to remain in the Air Force, was a significant explanatory factor; and, at lower t levels, in 4 more. In every instance the greater the number of "noes" the lower the valuation of benefits. For two benefits, this variable did not enter at all.

(9) For 11 benefits, length of service, if greater than or equal to 48 months, proved to be a significant explanatory factor, as shown in the Table, and the direction of effect could be ascertained in an additional 3, at lower t levels. In every instance, except retirement, the valuation went down with length of service. (For housing even the direction of effect could not be ascertained). On the other hand, if length of service was less than 48 months, it was not a significant explanatory variable for any benefit. Therefore, other things being equal, those in the first enlistment tended to place higher values on 13 benefits, a lower value on retirement, and the same value on housing.

(10) Economic expectations in civilian life (cash plus benefits) are significant in only 3 benefits, but at lower t levels, showed up in an additional 9. In all 12, except retirement, the higher the expectations with regard to civilian life the higher the valuation of non-monetary benefits.

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[12]The rules adopted for cut-off of the step-wise regression were such that the program terminated before all of the permissible variables actually entered.

(11) Religion is shown in the Table for only 2 benefits, but showed up for an additional 7 at lower $\underline{t}$ levels. In every instance the Roman Catholic respondent tended to place a higher value on the benefit than others.

(12) For 9 benefits the benefit understanding score is shown as a significant explantory factor, and the direction of effect could be ascertained, with lower $\underline{t}$ values, in 4 additional equations. In all 13 equations the effect of self-assessed high "understanding" is low valuation of the non-monetary benefit.

(13) For 8 benefits, as shown in the Table, and for the additional 3 benefits for which direction of effect could be ascertained at lower $\underline{t}$ levels, the Air Force-civilian comparison score (based only on factors other than monetary or non-monetary compensation) was a significant explanatory factor. For all 11 equations, those with scores less favorable to the Air Force placed lower values on non-monetary benefits. Note that the questions involved in this score relate only to such factors as security, freedom, family life, etc.—the last 13 items of Question 22, Part I of the questionnaire, as shown in Appendix I.

(14) The number of dependents appears five times in Table III. As the number of dependents increases the valuations placed, respectively, on dependent health, Commissary, housing and life insurance rise, but falls for travel. There is also a suggestion, at lower $\underline{t}$ values, that the Base Exchange valuation rises with dependents, while the recreation valuation falls with dependents.

(15) The probability of remaining in the Air Force till retirement was a significant explanatory factor in only one of the non-monetary benefits—retirement.

(16) Neither the response to the draft question, nor the score based on the identification of the factors most important to a decision about remaining in the Air Force, was significant as an explanatory factor for any of the 15 non-monetary benefits.

(17) Even with as many as 13 significant explanatory variables, the unexplained variance of non-monetary benefits is high.

(18) In retrospect it would have been better to make a choice between X_{35} and X_{37}, for the 15 non-monetary equations, rather than to permit both to enter—as they sometimes did. There is no reason to believe that any of the foregoing results are affected thereby, but X_{35} and X_{37} are correlated with each other, and it is difficult to attribute independent significance to them, either statistically or conceptually.

Turning, now, to the probability of remaining in the Air Force till retirement, it may be seen that

(a) Length of service is important. The probability goes down during the first enlistment and rises thereafter.

(b) The probability of remaining in the Air Force rises with number of dependents, with educational level, and with benefit understanding (self-assessed); and is higher for males.

(c) The probability of remaining in the Air Force falls with draft response (lower for those who say they would not have joined in the absence of the draft). It also falls if the factors identified by the respondent as most important to the decision are factors in which the respondent thinks the Air Force compares unfavorably with civilian life. It falls, too, as the number of "no" responses to the inducement question increases; and it falls as the Air Force civilian comparison score (non-compensation) features) rises, i.e., it is low if the Air Force is viewed unfavorably compared to civilian life.

(d) Economic expectations, whether for an Air Force or civilian career, do not appear as explanatory factors. At a somewhat more detailed level, neither Air Force cash expectations nor the total value placed on non-monetary benefits, appear to be significant.

(e) Nevertheless, two specific non-monetary benefits show up as explanatory variables. The probability of remaining in the Air Force rises with the value placed on the retirement benefit, but falls as the value placed on the personal health benefit rises.

SECTION V

CONCLUSIONS AND RECOMMENDATIONS

1. OBJECTIVE OF SECTION

A great many factual results have been presented in Section IV. Although all may be important, it is not easy to see which are particularly pertinent to the central issues of this study, or what their general thrust may be. It is the objective of this section to relate the quantitative findings to major purposes of the study.

Given that civilians were not surveyed, the underlying purpose of the study must be viewed as being to investigate the relation between retentions--not accessions--and non-monetary benefits; and a number of hypotheses were initially advanced which have some bearing on this relation. In this section, therefore, as a first step, these hypotheses will be discussed in the light of the numerical results. Thereafter, the central study question will be considered. Finally, the courses of action which, in the judgment of the investigators, the Air Force should follow, will be presented.

2. THE HYPOTHESES

a. Benefits Have Finite Value

Is it true that, for each benefit, there is some finite rate of compensation which will make the individual member of the Air Force feel just as well off? The broad answer to this question is certainly yes. It is true that, on the average, about 7% of the time the evaluation questions were answered by saying "priceless"—i.e., more than $1,000,000 per month—which, for practical purposes, is conceded to be infinity. On the other hand, it is known with some assurance that "priceless" did not always mean a high value. Furthermore, with the validating questionnaire, in only a negligible proportion of responses—about 1%—were the highest values available checked. Based on informal questioning there is some reason to believe that "P" sometimes meant not "priceless," but, rather, "inability or unwillingness to put a price on the benefit in question": the highest likelihood of a "P" response is known to be associated with E-1's and low educational level. It is believed that some people do not know how to approach and analyze such questions, partly because the questions are outside their experience, and partly because they lack a conceptual framework for coping with problems of uncertainty. An example of the former is provided by the 18-year-old recruit who is asked to place a value on health benefits, but has never had any personal exposure to health costs or health insurance costs. An example of the latter is provided by the individual who knows that health costs <u>can</u> be astronomical, and therefore believes that a pay increase, if it is to be compensatory

for a health benefit, must be equally astronomical! Time and experience may help the former, but only appropriate educational exposure may be of help for the latter.

In any event, it is conceded that there may be a few "hard core" cases who would really reject a very large pay increase, in favor of retaining a non-monetary benefit, but the data do not support the view that this is a serious problem quantitatively.

b. Variation Between Individuals

It was hypothesized that there would be great and unexplainable variation between individuals in the values placed on non-monetary benefits. If there is one thing clearly established by this study it is the fact of great variation between individuals who are similar with regard to all observed characteristics; and the variation is unexplainable in terms of any factor introduced explicitly into this study. Ultimately, however, it may be possible to account for some of this unexplained variability in terms of information available to the respondent, and in terms of other environmental/genetic factors.

c. Explainable Variation

The variation between individuals in terms of the value they place on a particular non-monetary benefit is partly explainable. It is believed that this study has established that the following factors do help to explain observed differences in valuation, although not all of them are useful for all non-monetary benefits: (1) expectations of total economic reward if an Air Force career is followed; (2) expectations of total economic reward if a civilian career is followed; (3) length of service; (4) number of dependents; (5) educational level; (6) sex; (7) Armed Forces relatives; (8) religion; (9) ethnic identification; (10) comparative evaluation of non-compensation attributes of Air Force and civilian life; (11) self-assessment of benefit understanding; (12) expectations with respect to benefit use, or probability of gain from benefits; (13) number of changes (inducements) required to make the individual stay in the Air Force; (14) the way in which the individual is permitted, by the questionnaire, to respond to the valuation question. There is also a strong indication that, for the retirement benefit only, the probability of remaining in the Air Force may be an important explanatory factor.

In addition—or instead—other factors may be important but could not be accepted or rejected because of correlation with the foregoing factors and/or with each other: age, current income, rank, base and base type.

Despite the multiplicity of factors which have explanatory value they leave a great deal unexplained, as pointed out earlier.

d. Valuations And Probability Of Use

The positive association between non-monetary benefit valuations

and the perceived probabilities of use of the respective benefits has been established, it is believed, as discussed in c., above.

e. Total Value Versus Sum Of Values

Is there a difference between the dollar value attributed to the total non-monetary benefit package and the sum of the values attributed to the benefits considered one at a time? The answer is certainly affirmative. According to evidence presented earlier, the magnitude of the difference can be expressed by saying that the sum of the individual values is about 85% higher than the value of the benefits considered collectively. This is a possible measure of the extent to which, on the average, the Air Force-provided non-monetary benefits fail to conform to the benefits which the individual would choose to purchase to maximize his own utility (satisfaction), if given a sum of money, instead of benefits, sufficient to make him feel as well off as he feels now.

f. The Intractable

It was hypothesized that there would be a "substantial number" of individuals in the sample who could not be induced to remain in the Air Force by any change in monetary or non-monetary benefits. It is a reasonable assumption, in view of the finite value of non-monetary benefits, that, for an individual for whom there is no monetary (cash) compensation, however large, which is sufficient to induce him to remain in the Air Force, there will also be no non-monetary benefit which is sufficient. On this assumption, and excluding those who definitely intend to remain in the Air Force till retirement, the survey shows that about 29% of the respondents could not be induced to remain in the Air Force by any amount (or form) of compensation. However, about one-third of those might be induced to remain by non-compensation changes, such as a choice of location or job assignment. Still excluding those who are already committed (by existing inducements) to an Air Force career, this leaves about one person in five who could not be induced to remain in the Air Force by any amount of compensation and any change in the non-compensation factors identified in the survey.

. Influence Of The Questionnaire

Does the questionnaire make a difference to the valuation of non-monetary benefits? There is no doubt whatever that the answer is "yes." More specifically, when the individual was asked to respond by circling one of a series of dollar values printed on the questionnaire, representing an amount he would accept in lieu of a benefit, rather than by writing in a sum of money to represent the precise value of the benefit, the former turned out to be significantly higher. But why? At first glance, the explanation is that the lowest amount an individual "would accept" should be higher than the amount representing the precise value of the benefit. However, every response to the validating questionnaire was

"corrected" down to the midpoint of the next lower interval, for if the lowest amount an individual would accept was $800, say, and the next lower amount printed on the questionnaire was $700, his point of indifference had to be between the two, and, for regression and most other purposes was treated as being at $750. There is no reason for this to introduce any significant bias, therefore.

A second explanation runs in terms of the fact that people who wanted to say "priceless" could not do so, but, instead, expressed their feelings by circling very high numbers. However, it has already been shown that those who chose to circle the highest available category ("$10,000+") constituted only about 1% of the validating responses whereas "P's," on the average, constituted about 7% of other responses. Hence the absence of the "P" option cannot account for the observed effects.

The most plausible explanation consistent with the findings is, in the view of the investigators, that respondents were influenced by the nature of the physical display. It was, of course, clear that "$0" and "$10,000+" were the extreme permissible values; and the relative paucity of "$10,000+" responses may be due to the reluctance of people to appear to be extremists. (In the basic questionnaire "P" was given official sanction as a permissible response, even though a mild attempt was made to discourage it). Indeed, the hypothesis being advanced here is that some individuals seek refuge in giving a mean or median response, and it happens that, of the 66 permissible dollar answers, the 33rd and 34th are, respectively $400 and $450, dollars. However, these amounts are about two to four times the mean valuations obtained from the basic questionnaire for every benefit except retirement, so that, by chance, the "normal" answer perhaps suggested to some by the validating questionnaire was a relatively high answer.

If this hypothesis is sound why is the validating response for retirement not low, rather than high? Those who would tend to be heavily influenced by the display would, no doubt, be those with little independent knowledge or information, i.e., the new recruits. On the other hand those who have been in the service 15-25 years, say, and—as discussed below—have a very special "relationship" to that benefit, are quite familiar with the probable amounts due them when they retire, know that large amounts would have to be collected in cash prior to retirement (to compensate for the hypothetical elimination of the benefit) and are not to be dissuaded from asserting its high value to them by anything so minuscule as the possible responses provided on the questionnaire. Roughly, then, for retirement—as for all other benefits—the hypothesis is that those who are relatively well informed will not be influenced significantly, while others will, on the average, be influenced—to place higher values than they would in a completely open-ended situation—by the fact that the median values shown are high (relative to the mean). It may also be noted that the responses in a central physical position, in the validating questionnaire, were even higher than the $400-450 discussed above.

Whatever the cause, however, there is no doubt that the differences between the validating and basic questionnaires did influence the results. But what of the sequential questionnaire? There is some real evidence that the sequential questionnaire did tend to reduce the valuations of non-monetary benefits, compared to the basic. However, the evidence appears substantial for only two of the non-monetary benefits. It appears reasonable to conclude that the exercise of comparing Air Force and civilian benefits, thinking about inducements, etc., which was necessary before benefit evaluation in the basic questionnaire (and presumably impossible in the sequential) had some minor, positive effect on the evaluation of benefits.

Except for one benefit, there is no evidence that the educational experiment produced results significantly different from those obtained with the basic questionnaire. It is suspected, but with no hard evidence, that the educational information provided was not, in fact, used. The problem of interpretation is complicated here, of course, by the very small number of responses, representing only one base.

3. THE INFLUENCE OF NON-MONETARY BENEFITS ON RETENTIONS

It appears to be self-evident that, other things being equal, the higher the valuation placed on non-monetary benefits, the more likely the individual is to remain in the Air Force. On this assumption, if the factors making for high benefit values can be identified, it will also be possible to identify factors conducive to retention of personnel.

It is believed to be established that the following personal factors make for high benefit valuations, in general:

a. High expected total compensation, especially if expected within the Air Force;

b. High probability that benefits will be utilized;

c. African or Latin-American self-identification at one (high) extreme; British self-identification at the other extreme;

d. Low length of service (except for retirement);

e. Low level of education;

f. Low self-assessment of benefit understanding;

g. Susceptibility to possible inducements to remain in the Air Force;

h. A relatively favorable view of such Air Force-civilian features as opportunity for advancement, job satisfaction, personal freedom, etc.

i. Roman Catholic;

j. Female (except for dependent health);

k. Large number of dependents, for dependent health, Commissary, Base Exchange, housing and life insurance; small number of dependents for recreation and travel.

If, then, the Air Force desired personnel who place high values on non-monetary benefits (and who, presumptively, will be more inclined to make the Air Force a career), the findings indicate that it should make special efforts to encourage the recruitment of Blacks, Latin Americans, Roman Catholics, women, the less educated—and those who say they do not understand the benefits. Note the clear implication that "educational" programs with regard to non-monetary benefits will not result in higher valuation of benefits, but will—if the education is successful—reduce the valuations placed on them.

However, there is a logical problem. Item (4), above, indicates that high valuation of benefits—except retirement—is associated with low length of service; yet high valuation of benefits is sought in the belief that it will encourage high length of service. Surely there is a problem! Without question people who have been in the Air Force a long time tend to place low values on nearly all non-monetary benefits (but place a high value on the retirement benefit).

It is only when the question is turned around that the pattern begins to make sense. What factors make for high probability of remaining in the Air Force? The probability of remaining in the Air Force:

(1) Increases with length of service, (after the 1st enlistment) educational level, benefit understanding, and number of dependents, and is higher for men.

(2) Decreases with length of service during the first enlistment, is lower for those who were influenced by the draft, and for those who felt that the Air Force compared unfavorably with civilian life in terms of (1) the factors selected by them as most important, and (2) non-compensation features, such as social/family life, freedom, etc.

Thus, it can be seen that there are a number of apparent contradictions. Generally, (except for retirement) long service increases the probability of remaining in the Air Force, but reduces the valuation of non-monetary benefits. Generally, more education increases the probability of remaining in the Air Force, but reduces the valuation of non-monetary benefits. Males have higher probability of remaining in the Air Force, but generally lower valuations of non-monetary benefits. Race, religion and relatives are significant in the evaluation of non-monetary benefits, but have no demonstrable role with regard to probability of remaining

in the Air Force. Dependents increase the probability of remaining in the Air Force, but have a mixed effect on the evaluation of non-monetary benefits.

These seeming contradictions can easily be resolved, however. What is at fault is the basic premise from which the contradictions flow: the premise that high evaluations of non-monetary benefits make for high probability of remaining in the Air Force. Once that general premise is dropped the contradictions disappear. For example, there is then no reason to expect education or length of service to have similar effects on non-monetary benefit evaluations and on the probability of remaining in the Air Force.

But it is possible to go much further. In constructing the regression equation for the probability of remaining in the Air Force, the candidate explanatory variables included not only the valuations of each non-monetary benefit, but also the valuations of total non-monetary benefits. However, the total non-monetary benefit evaluation did not enter the regression, implying that it does not help to "explain" the observed probability of remaining in the Air Force. The fact that this variable did not enter the regression provides positive support for the hypothesis that there is no close association, in general, between non-monetary benefit evaluations and probability of remaining in the Air Force.

However, two individual benefit valuations did enter the regression equation. The higher the value placed on the retirement benefit, the higher the probability of remaining in the Air Force. This result simply confirms what was observed in the regression constructed to explain the valuation of the retirement benefit. It tends to confirm what other evidence suggests: that those personnel in the Air Force who intend to remain place very high value on the retirement benefit; and, conversely, that the higher the value, the more likely they are to remain in the Air Force. If there is any aspect of non-monetary benefits, individually or collectively, which significantly affects the retention of personnel, it is retirement.

The other individual benefit valuation which appears to help "explain" the probability of remaining in the Air Force is that for personal health: the higher this valuation the lower the probability of remaining in the Air Force. The interpretation which should be placed on this result is unclear, particularly since other evidence indicates that this benefit appears as the "most important factor," in deciding whether to remain in the Air Force, only about the "expected" number of times. (However, it should not be forgotten that the personal health benefit was compared favorably with civilian life more frequently than any other benefit, suggesting that the valuation was high even, and perhaps especially, by those who were seriously considering leaving the Air Force.) A purely speculative explanation is that those who place a high value on this benefit are, other things being equal, those who have serious reason to be concerned about the cost of its civilian couterpart, or those who

anticipate its use; and such personnel perhaps do not tend to view an Air Force career as promising.

In sum, the evidence fails to support the position that non-monetary benefits—or monetary benefits, for that matter—are, in general, important in retaining personnel. Indeed, it is clear that, except for retirement, personnel place lower and lower values on non-monetary benefits as length of service increases, at least after the first enlistment. But if neither monetary nor non-monetary benefits, nor their sum, are influential in retention, what is? Based on the present study the answer can only be conjectural, but it may well be that (a) total compensation may be viewed as not greatly different—except for retirement—between Air Force and civilian opportunities, and therefore does not appear as an explantory factor; (b) people who tend to enlist for a second term are those who, at the time, view the Air Force relatively favorably in non-compensation areas, such as job satisfaction, security, etc., and also in terms of cash[13]; (c) by the time the second enlistment is completed, the dominant factor in remaining has become retirement.

4. RECOMMENDATIONS

a. It is recommended that the Air Force take no action to educate its present personnel with regard to non-monetary benefits in general. The evidence indicates that education, if it can be carried out successfully, may actually be detrimental to the evaluation of non-monetary benefits.

b. Non-monetary benefit evaluations, except for retirement, are not a significant factor making for personnel retention. (This does not mean, of course, that non-monetary benefits—as opposed to valuations—can be significantly reduced without adverse consequences for retention). Conversely, however, the retirement benefit is significant for retention. Therefore, to retain personnel, it is recommended that the high "present value" of the retirement benefit be explained and stressed during the first enlistment and subsequent years.

c. The evidence clearly indicates that the Air Force is providing non-monetary benefits which, individually, are recognized as being of high value, but collectively are deemed to be of much lower value. This means that an opportunity potentially exists for the Air Force to improve the attractiveness of its benefits. One way to do this would be to reallocate the resources it now uses for non-monetary benefits in such a way that the results conform more closely to what Air Force members appear to want, e.g., better housing and food.

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[13]See the discussion on pages 58-59, especially for the 6th length of service decile—those who have served 49-80 months.

However, there are intrinsic limitations here arising from the fact that people do have substantially different tastes—as the results surely demonstrate! It appears clear, as a matter of judgment, that the "average individual" could be made to feel better off by a non-monetary benefit reallocation carried out by the Air Force, but the major potential for improvement lies in letting every man allocate for himself to the maximum extent possible. Such individual allocation can occur, however, only if the individual has more cash in lieu of the non-monetary benefits. Therefore, the Air Force should seriously consider the abandonment of non-monetary benefits in favor of cash.

It is important that the reason for describing "cash in lieu of non-monetary benefits" as a "potential" rather than an actual improvement be understood. This study has not been at all concerned with the costs of non-monetary benefits, and without such investigation, definitive statements about Air Force improvement cannot be made. Suppose the sum of the values placed on a certain series of non-monetary benefits by the average respondent is $500. Suppose, too, that the allocation effect—the built-in inefficiency associated with the Air Force-imposed allocation of resources—is such that the average respondent would be just as well off with $300 in cash. Under these conditions, if the cost to the Air Force[14] is $400, it could eliminate the non-monetary benefits in question, give each man $350 more in cash—making him better off by $50—and, at the same time, save $50 on each man. Note that if the cost to the Air Force is less than $300 it would not be desirable to provide cash in lieu of these benefits; and that the quantity $500 is really irrelevant, except as an indicator, in relation to $300, of the magnitude of the inefficiency due to Air Force allocation.

It may be pointed out that, if the Air Force should decide to move toward cash, instead of non-monetary benefits, it might then be appropriate to undertake a compaign to educate personnel as to the "true" worth of the non-monetary benefits, since the evidence suggests that education would improve the relative attractiveness of cash! Despite the apparent effectiveness of retirement as a retention device, there is no evidence that cash would not be still more effective. Moreover, considerations of equity point in the same direction, as indicated by the growing tendency in industry to early "vesting" of retirement rights.

What does it mean, then, when it is recommended that the Air Force "consider" substituting cash for non-monetary benefits? The fact is that, at the moment, not enough is known to determine whether

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[14]This is itself a slippery concept, understood by few. The "cost," as used here, is strictly an economic concept, and cannot be established solely from accounting records.

it is, or is not, a good, calculated risk. Further study is clearly required to make such a determination, but further study along the lines of the present effort will not provide the answers which are required.

d. It is recommended that certain further study be undertaken to establish whether the Air Force should move from non-monetary benefits to cash. In the judgment of this investigator it is essential that this study deal with the evaluation of concrete possibilities of Air Force or other Governmental action, rather than with abstractly conceived "values" which, it is hoped, will have generalized usefulness. Once these action possibilities have been established it will then be feasible to provide meaningful evaluation. The major steps in such a study would be as follows:

(1) Identification of non-monetary benefits which the Air Force believes it would be operationally feasible to get along without. For example, to what extent would the Air Force be willing to consider eliminating Air Force control over the provision of health care to Air Force members? Food? Housing?

(2) Establishment of the costs to the Air Force of the selected non-monetary benefits. Note that the costs here must be full costs, i.e., the total amount by which current Air Force expenditures (and future commitments) would fall if the selected non-monetary benefits were really eliminated.

(3) Establishment of a hypothetical but realistic cash compensation system, (i.e., determination of how much cash would go to each pay grade, etc.), consistent with the total costs earlier established.

(4) A survey to determine the preferences of current and prospective Air Force members as between the current total monetary and non-monetary compensation system and the "cash-"oriented compensation system established in (3). Note that this last step would critically differentiate it from the present study, since it would be designed to evaluate the desirability of a specific set of Air Force actions. (Useful recommendations for non-research action seldom emerge from "general" studies.) Respondents to this survey will thus not need to be asked how much a benefit is worth, but will simply have to determine whether a realistic Air Force cash "offer" is or is not preferred to the present system, making the responses far less sensitive to questionnaire wording, layout, etc.

e. The present study has focused on non-monetary benefits. It has just been recommended that a study be undertaken to establish

the desirability of substituting cash for such benefits, and the nature and extent of such substitution. Such a study deserves high priority. Nevertheless, there is ample evidence in the present study that, for a great many people, the critical factors in retention—at least as perceived by them—have little, if anything to do with compensation in any form. For these people the critical advantage or disadvantage of the Air Force (compared to civilian life) lies in such factors as job satisfaction, personal freedom, etc. Analysis of the data already collected should be carried out to establish the characteristics of respondents who were or were not satisfied with their jobs, family life, etc., in the Air Force. It may well be desirable, following such analysis, to undertake further study of methods for improving these non-compensation characteristics of the Air Force.

APPENDIX I
BASIC QUESTIONNAIRE, PART I

USAF SCN 73 - 117 NON MONETARY BENEFITS SURVEY

This questionnaire has been developed to help find out how the Air Force can be made more attractive to those who are in it and to those who might become interested in it in the future. The questionnaire deals with various kinds of Air Force compensation or benefits that are not principally in cash form, for example, health benefits.

Although it costs the Air Force a great deal to provide all of these benefits, we do not know how much they are really worth to you. Perhaps you would be better off if you received more in the form of cash, instead of some or all of the benefits which, presently, are not in a current cash form. Possibly you would be better off if the Air Force paid less in cash and improved the non-monetary benefits. The only way we can find this out is to obtain honest, careful and intelligent responses to this questionnaire. No decision has yet been made to modify in any way the system of Air Force benefits, but your answers could have an influence on future planning.

The questionnaire is in two parts. When you have completed Part I, turn it in, and you will then receive Part II. Your Social Security Number is requested to aid in correlating the two parts of the questionnaire, and for other research purposes, but your answers will otherwise remain strictly confidential.

PART I

1. Social Security Number: _____ 2. Age (last birthday): _____

3. Air Force Specialty Code (AFSC)

Duty AFSC: _____ Primary AFSC: _____

4. Length of USAF service: _____ years _____ months

PLEASE CIRCLE THE ANSWERS TO QUESTIONS 5 - 15, BELOW

5. Sex: 1 - female 2 - male

6. Marital Status: 1 - single 2 - married 3 - formerly married

7. Number of dependents, not counting yourself:

(a) Wife and children: 0 1 2 3 4 5 6 or more
(b) Other dependents: 0 1 2 3 4 5 6 or more

8. Pay grade:

E (Enlisted)	1	2	3	4	5	6	7	8	9
W (Warrant Officer)	1	2	3	4					
O (Officer)	1	2	3	4					

9. Highest education achieved so far:

1 - Elementary
2 - High school; did not graduate
3 - High school graduate
4 - College, did not graduate
5 - College graduate, bachelor's degree
6 - Post-graduate degree

10. Income from all sources, MONTHLY, after taxes. (If married, include income of spouse and dependent children):

$0-499 $500-999 $1000-1499 $1500-1999 $2000-2499 $2500 and up

11. Race: 1 - Black 2 - White 3 - Other

12. Religion: 1 - Roman Catholic 2 - Protestant 3 - Jewish 4 - Other

13. Do you consider that your ancestry is principally (circle one only):

1 - British 2 - Irish 3 - Italian 4 - German 5 - Polish
6 - Other European 7 - Latin American 8 - African 9 - All Other

14. Which of your relatives have served in the Armed Forces of the United States, or any other country (circle all that apply):

1 - parent(s) 2 - brother(s), sister(s) 3 - other 4 - none

15. You currently have quarters: 1 - on base 2 - off base

16. Counting everything that the Air Force pays you in cash, except housing and subsistence allowances, how much does the Air Force currently pay you per month, before payment of any Federal Income Tax? (To nearest dollar)

$ _____ per month

17. Check the one statement below which best describes your intentions:

1) ___ I definitely intend to get out of the Air Force as soon as possible.
2) ___ There is about 1 chance in 10 that I will remain in the Air Force till retirement.
3) ___ There are about 2 chances in 10 that I will remain in the Air Force till retirement.
4) ___ There are about 3 chances in 10 that I will remain in the Air Force till retirement.
5) ___ There are about 4 chances in 10 that I will remain in the Air Force till retirement.
6) ___ There is about a 50-50 chance that I will remain in the Air Force till retirement.
7) ___ There are about 6 chances in 10 that I will remain in the Air Force till retirement.
8) ___ There are about 7 chances in 10 that I will remain in the Air Force till retirement.
9) ___ There are about 8 chances in 10 that I will remain in the Air Force till retirement.
10) ___ There are about 9 chances in 10 that I will remain in the Air Force till retirement.
11) ___ I definitely intend to remain in the Air Force till retirement.

18. Do not answer this question if you definitely intend to remain in the Air Force till retirement. Would you remain in the Air Force if you could obtain (answer all parts):

1)	A sufficiently large bonus or increase in salary?	Yes	No
2)	Sufficiently rapid promotions?	Yes	No
3)	A choice of Air Force locations?	Yes	No
4)	A choice of job assignments for which you are qualified?	Yes	No
5)	A shorter period of service?	Yes	No
6)	Guaranteed non-combatant status?	Yes	No
7)	Better living conditions?	Yes	No
8)	Less severe military discipline?	Yes	No
9)	More or improved recreation (including clubs)?	Yes	No
10)	Some combination of Items 1) through 9)?	Yes	No

19. Would you have chosen to join the Air Force if there had been no military draft? (Circle one)

1 - Yes 2 - Probably 3 - Probably not
4 - No 5 - Does not apply (was not subject to draft)

20. Below is a list of Air Force benefits. Using the following key check the column that applies to you, after each benefit:

Column a: Have no idea what the benefit is
Column b: Have some idea what the benefit is
Column c: Have good idea what the benefit is
Column d: Have complete understanding of the benefit

	No idea	Some idea	Good idea	Complete understanding
1) Dependents' health benefits	☐	☐	☐	☐
2) Health care of Air Force members	☐	☐	☐	☐
3) Pay while sick or disabled	☐	☐	☐	☐
4) Commissary privileges	☐	☐	☐	☐
5) Base Exchange and related privileges	☐	☐	☐	☐
6) Food (including subsistence allowance)	☐	☐	☐	☐
7) Housing (including housing allowance)	☐	☐	☐	☐
8) Off-duty AF-administered recreation (incl. clubs)	☐	☐	☐	☐
9) Educational benefits, except job training	☐	☐	☐	☐
10) Servicemen's Group Life Insurance	☐	☐	☐	☐
11) Home loan insurance	☐	☐	☐	☐
12) Off-duty air travel privileges	☐	☐	☐	☐
13) Retirement benefits	☐	☐	☐	☐
14) Annual leave	☐	☐	☐	☐
15) Federal Income Tax break for Armed Forces	☐	☐	☐	☐

21. In this question you are asked to compare various features of Air Force and civilian life. Complete each statement below by checking one of the columns.

	Far better inside USAF	Better inside USAF	About same inside USAF	Worse inside USAF	Far worse inside USAF
1) Health benefits for my dependents are	☐	☐	☐	☐	☐
2) My health benefits are	☐	☐	☐	☐	☐
3) My pay while sick or disabled is	☐	☐	☐	☐	☐
4) The food I usually eat is	☐	☐	☐	☐	☐
5) The housing I usually live in is	☐	☐	☐	☐	☐
6) The recreational facilities (incl. clubs) I usually have are	☐	☐	☐	☐	☐
7) The opportunity for continuing my education is	☐	☐	☐	☐	☐
8) The terms on which I can obtain life insurance are	☐	☐	☐	☐	☐
9) The terms on which I can buy a home are	☐	☐	☐	☐	☐
10) The terms on which I can travel are	☐	☐	☐	☐	☐
11) The retirement benefits I am entitled to are	☐	☐	☐	☐	☐
12) The amount of paid annual leave I have is	☐	☐	☐	☐	☐
13) The Federal tax breaks I have are	☐	☐	☐	☐	☐
14) The value of all non-monetary benefits is	☐	☐	☐	☐	☐
15) The money I earn (cash, including bonuses) is	☐	☐	☐	☐	☐
16) The total value of pay and other benefits is	☐	☐	☐	☐	☐
17) The security I have is	☐	☐	☐	☐	☐
18) The number of hours I usually work are	☐	☐	☐	☐	☐
19) My opportunities for advancement are	☐	☐	☐	☐	☐
20) My physical safety is	☐	☐	☐	☐	☐
21) The respect I receive from the public is	☐	☐	☐	☐	☐
22) My personal freedom is	☐	☐	☐	☐	☐
23) The satisfaction I receive from my job is	☐	☐	☐	☐	☐
24) The service I render to others is	☐	☐	☐	☐	☐
25) The preparation I receive for a future career is	☐	☐	☐	☐	☐
26) The recognition I receive for my achievements are	☐	☐	☐	☐	☐
27) The guidance and supervision I receive are	☐	☐	☐	☐	☐
28) My family and social life are	☐	☐	☐	☐	☐
29) My family believes my future is	☐	☐	☐	☐	☐

22. Of the factors listed in Question 21, numbered from 1 to 29, identify below the three which are most important to you in deciding whether or not to remain in the Air Force. First choose the most important factor and write in its number (from 1 to 29), then choose the next most important, and then the third most important.

Most important factor _____

Second most important factor _____

Third most important factor _____

APPENDIX II
BASIC QUESTIONNAIRE, PART II

PART II

Please repeat your Social Security Number: _____

In this part of the questionnaire we want to pin down the values of Air Force benefits to you. Speed does not count. Please read the questions carefully.

23. Below is a list of certain Air Force benefits. Nearly everyone in the Air Force will take advantage of some of them, such as Benefit 6 below, since nearly everyone is supplied with food or a subsistence allowance. You may not be in a position to take advantage of certain benefits unless you make certain choices (such as getting married, staying in the Air Force, and so on). Still others depend on luck, such as the state of your health. How likely is it that you (or your dependents) will take advantage of each benefit?

	Very likely	Likely	Un-likely	Very un-likely	No idea what bene-fit is
1) Dependents' health benefits	☐	☐	☐	☐	☐
2) Health care of Air Force members	☐	☐	☐	☐	☐
3) Pay while sick or disabled	☐	☐	☐	☐	☐
4) Commissary privileges	☐	☐	☐	☐	☐
5) Base Exchange and related privileges	☐	☐	☐	☐	☐
6) Food (including subsistence allowance)	☐	☐	☐	☐	☐
7) Housing (including housing allowance)	☐	☐	☐	☐	☐
8) Off-duty AF-administered recreation (incl. clubs)	☐	☐	☐	☐	☐
9) Educational benefits, except job training	☐	☐	☐	☐	☐
10) Servicemen's Group Life Insurance	☐	☐	☐	☐	☐
11) Home loan insurance	☐	☐	☐	☐	☐
12) Off-duty air travel privileges	☐	☐	☐	☐	☐
13) Retirement benefits	☐	☐	☐	☐	☐
14) Annual leave	☐	☐	☐	☐	☐
15) Federal Income Tax break for Armed Forces	☐	☐	☐	☐	☐

24. Some or all Air Force benefits could be reduced or eliminated without injuring you in any way, because the Air Force could probably make you feel just as well off as you do now by giving you more in your paycheck. All of the benefits that the Air Force supplies are made possible by the expenditure of money, so if you have enough money of your own you can ordinarily buy what the Air Force now gives away in benefits. For instance, if the Air Force were to cut out health care of Air Force members, and increased your pay sufficiently, you coul buy any amount of medical care you wanted, through insurance and/or your own resources. No matter how much you may value this benefit, it certainly isn't "priceless."

Furthermore, if the Air Force were to give you cash instead of a benefit, you wouldn't have to spend the money for the things that are included in the benefit. For example, you might believe that a pay increase obtained in exchange for health benefits would be best spent on a vacation each year, or for increasing your savings. The only questions of interest here relate to how much increase in pay you would require, in exchange for benefits, to make you feel exactly as well off as you do now. Do not worry about whether the Air Force would actually pay as much as you write down, even if the amount is very great. We estimate that we have provided enough space for at least six digits in your response--from zero up to $999,999 per month for each benefit--if you wish.

Some benefits may appear to "apply" only to people in a special category, such as people with dependents. However, even if you are single, you may be worse off if such a benefit is eliminated, since there may be a chance that you will have dependents later in your Air Force career. It is desired that you specify the pay increases that would be required to compensate you for every change in benefits discussed below.

THERE IS NO PREDICTABLE ADVANTAGE IN EITHER OVERSTATING OR UNDERSTATING THE VALUE OF A CHANGE TO YOU. IF YOU OVERSTATE IN THE HOPE OF A SUBSTANTIAL PAY INCREASE (INSTEAD OF A BENEFIT), IT IS JUST AS LIKELY TO CAUSE THE AIR FORCE TO CONCLUDE THAT A BENEFIT WHICH IS SO VALUABLE SHOULD NOT BE CHANGED AT ALL. IF YOU UNDERSTATE YOU MAY HELP TO BRING ABOUT A PAY CHANGE, BUT THE PAY CHANGE MAY BE SO SMALL THAT YOU COULD EASILY LOSE BY THE CHANGE.

Remember: if you plan to end your Active Duty Air Force career in, say, 5 years (or 60 months) from now, the estimated total amount you will have received to compensate for a benefit change, by the time you leave the service, will be 60 times the (monthly) amount you write down for that benefit. This is true for every benefit change. This means that, if the retirement benefit is eliminated, for example, you will receive nothing after your Active Duty terminates, but the compensatory pay increase would take place every month between now and the time you leave Active Duty. Benefits under the GI Bill are not affected by any change discussed, and you should assume no further inflation.

Please give intelligent and realistic responses, so that it really makes no difference to you whether (a) there is no change in the benefit system and no change in pay, or (b) a benefit is changed and you receive the pay increase you write down.

For each change in benefits below, write down the monthly pay increase (to the nearest dollar) required to make you feel exactly as well off as you feel now. If no increase would be required, write "0" in the space provided. If $1,000,000 or more per month would be required, write "P" for ("priceless") in the appropriate space. Leave the answer blank only if you have no idea what the benefit is.

1) If all health benefits for dependents were eliminated, so that any health care for dependents had to be purchased from civilian sources? $ _____ per month

2) If all health care were eliminated for Air Force members, except that required in combat zones, so that all other health care had to be purchased from civilian sources? $ _____ per month

3) If the right to receive pay and allowances, while absent from duty because of sickness or disability, were eliminated? $ _____ per month

4) If the Commissary were eliminated, so that all such purchases had to be made from civilian sources? $ _____ per month

5) If Base Exchange privileges, and all related services (such as laundry, gas station, etc.) were eliminated, so that all such purchases had to be made from off-base civilian sources? $ _____ per month

6) If the Air Force stopped providing food, and also stopped subsistence allowances, but, where necessary, established commercially operated eating places to permit meal purchases by Air Force personnel? $ _____ per month

7) If the Air Force stopped providing housing, and also stopped housing allowances, so that housing had to be obtained privately by <u>all</u> Air Force personnel? $ _____ per month

8) If all off-duty recreation administered by the Air Force, such as sports and clubs, were eliminated, and members of the Air Force therefore had to use civilian facilities, on the same basis as civilians? $ _____ per month

9) If all Air Force educational benefits, other than job training, were eliminated, so that education was available on the same terms as for civilians? $ _____ per month

10) If Servicemen's Group Life Insurance were abolished, as well as the death benefits currently provided by the Air Force? $ _____ per month

11) If the Air Force were to eliminate payments for home loan insurance? $ _____ per month

12) If off-duty Air Force air travel privileges, (including reduced commercial air rates), were eliminated? $ _____ per month

13) If all Air Force retirement benefits, other than Social Security, were eliminated (except for those already retired)? $ _____ per month

14) If the amount of annual leave earned from now on were cut in half? $_____ per month

15) If Federal Income Tax breaks, available only to those in the Armed Forces, were eliminated? $_____ per month

25. If all of the changes in Question 24 were to be made, how much increase in monthly cash pay would be required to make you feel as well off as you feel now? (Exclude any benefit change for which you have not shown a dollar amount in Question 24). $_____ per month

26. If you were to remain on Active Duty in the Air Force until retirement, how much cash would you expect to receive from the Air Force, per average month from now till retirement? (Include pay, bonuses, and allotments, before deduction of Federal Income Tax, but exclude allowances for subsistence and housing). $_____ per month

27. If you were to leave the Air Force now, how much would you expect to earn from civilian employment, per average month from now till retirement?

(a) In cash (before taxes) $_____ per month

(b) In other benefits--dollar value, excluding 15 days' leave $_____ per month

(c) In total cash and other benefits, excluding 15 days' leave $_____ per month

28. If you were to leave the Air Force now, and you had not received whatever job training Active Duty has given you, how much would you expect to earn from civilian employment, per average month from now till retirement?

Total cash and other benefits, excluding 15 days' leave $_____ per month

APPENDIX III
VALIDATING QUESTIONNAIRE, PART II

PART II

Please repeat your Social Security Number: _____

In this part of the questionnaire we want to pin down the values of Air Force benefits to you. Speed does not count. Please read the questions carefully.

23. Below is a list of certain Air Force benefits. Nearly everyone in the Air Force will take advantage of some of them, such as Benefit 6 below, since nearly everyone is supplied with food or a subsistence allowance. You may not be in a position to take advantage of certain benefits unless you make certain choices (such as getting married, staying in the Air Force, and so on). Still others depend on luck, such as the state of your health. How likely is it that you (or your dependents) will take advantage of each benefit.

	Very likely	Likely	Un-likely	Very un-likely	No idea what benefit is
1) Dependents' health benefits	☐	☐	☐	☐	☐
2) Health care of Air Force members	☐	☐	☐	☐	☐
3) Pay while sick or disabled	☐	☐	☐	☐	☐
4) Commissary privileges	☐	☐	☐	☐	☐
5) Base Exchange and related privileges	☐	☐	☐	☐	☐
6) Food (including subsistence allowance)	☐	☐	☐	☐	☐
7) Housing (including housing allowance)	☐	☐	☐	☐	☐
8) Off-duty AF-administered recreation (incl. clubs)	☐	☐	☐	☐	☐
9) Educational benefits, except job training	☐	☐	☐	☐	☐
10) Servicemen's Group Life Insurance	☐	☐	☐	☐	☐
11) Home loan insurance	☐	☐	☐	☐	☐
12) Off-duty air travel privileges	☐	☐	☐	☐	☐
13) Retirement benefits	☐	☐	☐	☐	☐
14) Annual leave	☐	☐	☐	☐	☐
15) Federal Income Tax break for Armed Forces	☐	☐	☐	☐	☐

24. Some or all Air Force benefits could be reduced or eliminated without injuring you in any way, because the Air Force could probably make you feel just as well off as you do now, by giving you more in your paycheck. All of the benefits that the Air Force supplies are made possible by the expenditure of money, so if you have enough money of your own you can ordinarily buy what the Air Force now gives away in benefits. For instance, if the Air Force were to cut out health care of Air Force members, and increased your pay sufficiently, you could buy any amount and quality of medical care you wanted, through insurance and/or your own resources. No matter how much you value this benefit, it certainly isn't "priceless."

Furthermore, if the Air Force were to give you cash instead of a benefit, you wouldn't have to spend the money for the things that are included in the benefit. For example, you might believe that a pay increase obtained in exchange for health benefits would be best spent on a vacation each year, or for increasing your savings. The only questions of interest here relate to the lowest increase in pay you would accept, in exchange for benefits. Do not worry about whether the Air Force would actually pay as much as you write down, even if the amount is very great.

Some benefits may appear to "apply" only to people in a special category, such as people with dependents. However, even if you are single, you may be worse off if such a benefit is eliminated, since there may be a chance that you will have dependents later in your Air Force career. It is desired that you specify the lowest pay increases you would accept in exchange for every change in benefits discussed below.

THERE IS NO PREDICTABLE ADVANTAGE IN EITHER OVERSTATING OR UNDERSTATING THE REQUIRED PAY INCREASES. IF YOU OVERSTATE IN THE HOPE OF A SUBSTANTIAL PAY INCREASE (INSTEAD OF THE BENEFIT), IT IS JUST AS LIKELY TO CAUSE THE AIR FORCE TO CONCLUDE THAT A BENEFIT WHICH IS SO VALUABLE SHOULD NOT BE CHANGED AT ALL. IF YOU UNDERSTATE YOU MAY HELP TO BRING ABOUT A PAY CHANGE, BUT THE PAY CHANGE MAY BE SO SMALL THAT YOU COULD EASILY LOSE BY THE CHANGE.

Remember: if you plan to end your Active Duty Air Force career in, say, 5 years (or 60 months) from now, the estimated total amount you will have received to compensate for a benefit change, by the time you leave the service, will be 60 times the (monthly) amount you write down for that benefit. This is true for every benefit change. This means that, if the retirement benefit is eliminated, for example, you will receive nothing after your Active Duty terminates, but the compensatory pay increase would take place very month between now and the time you leave Active Duty. Benefits under the GI Bill are not affected by any change discussed, and you should assume no further inflation.

Please give intelligent and realistic responses, so that for each question the amount you circle below is really the lowest increase in pay you would accept to compensate you for the benefit change. Answer every question unless you have no idea what the benefit is. All amounts listed are in dollars per month.

After each question following, circle the lowest monthly increase in pay you would accept if you were given a choice between a pay increase and the changes in the benefits described. Leave answer blank only if you have no idea what the benefit is.

1) If all health benefits for dependents were eliminated, so that any health care for dependents had to be purchased from civilian sources, the lowest monthly increase in pay I would accept to compensate for the change is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

2) If all health care were eliminated for Air Force members, except that required in combat zones, so that all other health care had to be purchased from civilian sources, the lowest monthly increase in pay I would accept to compensate for the change is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

3) If the right to receive pay and allowances while absent from duty because of sickness or disability were eliminated, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

4) If the Commissary were eliminated, so that all such purchases had to be made from civilian sources, the lowest monthly increase in pay I I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

5) If Base Exchange privileges, and all related services (such as laundry, gas station, etc.) were eliminated, so that all such purchases had to be made from off-base civilian sources, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

6) If the Air Force stopped providing food, and also stopped subsistence allowances, but, where necessary, established commercially operated eating places to permit meal purchases by Air Force personnel, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

7) If the Air Force stopped providing housing, and also stopped housing allowances, so that housing had to be obtained privately by all Air Force personnel, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

8) If all off-duty recreation administered by the Air Force, such as sports, library, etc., were eliminated, and members of the Air Force therefore had to use civilian facilities, on the same basis as civilians, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	35	80	140	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

9) If all Air Force educational benefits, other than job training, were eliminated, so that education was available on the same terms as for civilians, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

10) If Servicemen's Group Life Insurance were abolished, as well as the death benefits currently provided by the Air Force, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

11) If the Air Force were to eliminate payments for home loan insurance, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

12) If off-duty Air Force air travel privileges (including reduced commercial air rates) were eliminated, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

13) If all Air Force retirement benefits, other than Social Security, were eliminated, (except for those already retired), the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

14) If the amount of annual leave earned from now on were cut in half, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

15) If Federal Income Tax breaks, available only to those in the Armed Forces, were eliminated, the lowest monthly increase in pay I would accept is

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

25. If all 15 of the changes in benefits described in Question 24 were to be made, the lowest monthly increase in pay I would accept to compensate for the changes is (Exclude any benefit change for which you have not indicated a value in Question 24).

0	15	45	100	175	325	600	1,000	1,750	3,500	6,500
2	20	50	110	200	350	650	1,100	2,000	4,000	7,000
4	25	60	120	225	400	700	1,200	2,250	4,500	8,000
6	30	70	130	250	450	750	1,300	2,500	5,000	9,000
8	35	80	140	275	500	800	1,400	2,750	5,500	10,000
10	40	90	150	300	550	900	1,500	3,000	6,000	10,000 +

26. If you were to remain on Active Duty in the Air Force until retirement, how much cash would you expect to receive from the Air Force, per average month from now till retirement? (Include pay, bonuses, and allotments, before deduction of Federal Income Tax, but exclude allowances for subsistence and housing) $_____ per month

27. If you were to leave the Air Force now, how much would you expect to earn from civilian employment, per average month from now till retirement?

(a) In cash (before taxes) $_____ per month

(b) In other benefits--dollar value, excluding 15 days' leave $_____ per month

(c) In total cash and other benefits, excluding 15 days' leave $_____ per month

28. If you were to leave the Air Force now, and you had not received whatever job training Active Duty has given you, how much would you expect to earn from civilian employment, per average month from now till retirement?

Total cash and other benefits, excluding 15 days' leave $_____ per month

APPENDIX IV
INFORMATIONAL PACKAGE
FOR
EDUCATIONAL QUESTIONNAIRE

INFORMATION REQUIRED TO ANSWER QUESTIONS ON AIR FORCE BENEFITS

The information presented here is intended to assist you in responding to the questionnaire. It deals with the Air Force benefits about which your opinion is sought. Without this information your answers may not make sense. Refer to the contents below in order to locate the information you need.

		Page
1)	Dependents' Health Benefits	1
2)	Health Care of Air Force Members	2
3)	Pay While Sick or Disabled	2
4)	Commissary Privileges	3
5)	Base Exchange and Related Privileges	4
6)	Food (Including Subsistence Allowance)	4
7)	Housing (Including Housing Allowance)	5
8)	Off Duty Air Force Administered Recreation	5
9)	Air Force-Assisted Educational Opportunities	7
10)	Servicemen's Group Life Insurance and Survivor's Benefits	8
11)	Home Loan Insurance	9
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16)	Air Force Pay	13

1) Dependents' Health Benefits

Dependents of Air Force members, including spouse and children, are entitled to certain health benefits. These include:

(a) Medical care and hospitalization, including dental care, at military installations, to the extent that personnel and facilities permit, on a no-fee basis.

(b) Civilian hospitalization at $1.75 per day, or $25, whichever is greater.

(c) Civilian out-patient (physician or hospital) care at $50 per year per dependent, not to exceed $100 per family, plus 20% of charges over the deductible. Other charges, if need is certified by a physician, may include up to $100 for private-duty nursing care, plus 25% of costs in excess of $100; and 25% of the difference between private and semi-private room charges, if a private room is chosen. Physician and hospital costs in excess of those specified will be paid by the government.

There are certain exclusions from this coverage. These include civilian dental care, cosmetic or voluntary surgery, treatment of congenital defects, and some chronic situations. (There is a special program of health services, training and education for mentally or physically handicapped spouse or children.)

Certain other dependents, such as parents or parents-in-law, are entitled to health care in service facilities only, to the extent facilities are available.

In 1969 the per capita expenditure for health services in the U.S, was about $21 per month or about $83 per month for a family of four. This covers hospitals, doctors, drugs, etc. A family of four spent, on the average, an additional $9 per month for dental care, eyeglasses and appliances. Allowing for the increased cost of medical care since 1969, we estimate the 1973 cost for a family of four at $115 per month, of which about $13 per month is for dental care, eyeglasses and appliances.

Many kinds of medical and insurance policies are available, each with different terms and conditions--and costs. A medical insurance program selected to give coverage which is somewhat comparable to that in the Air Force--complete comparability cannot be achieved--might have the following features:

(a) Covers all hospital costs for 70 days for each illness, in excess of $100 per illness. Semi-private room is covered.
(b) Covers surgical procedures up to $1200 per procedure.
(c) Covers all medical costs over $1,000 per illness, up to $60,000. Room costs limited to $80 per day.
(d) Covers family head as well as dependents
(e) Excludes dental, eyeglasses, illnesses out of hospital (up to $1,000), etc.

This insurance program (as of Fall, 1972) would have a monthly cost as shown below:

	Age			
	20	30	40	50
Single	$37	$38	$41	$46
Married*	$75	$76	$83	$94

*Add $2 if more than one child; deduct $2 if no children.

2) Health Care of Air Force Members

Each member has complete medical and dental care without charges. Periodic examinations are required.

If this benefit were eliminated the closest one could come to duplicating it through civilian purchase would be through the type of program described under "Dependents' Health Benefits," above.

3) Pay While Sick or Disabled

Air Force members draw full pay and allowances while on the sick list.

If a person cannot be retained in the Air Force because of health, the money he will receive depends on the severity of the disability. If the disability is less than 30 percent, no disability payments are made but a one-time severance of 2 months pay for each year of service (up to 2 years of pay) is given: this would be the case, for, say, loss of one or two fingers or toes (under the Veterans' Administration Standard rating). If the disability is greater than 30 percent, disability pay is paid to the retiree for life, where the amount of payment varies between 30 and 75 percent of active duty pay at time of disablement--usually depending on the severity of the disability, but occasionally on length of service. Nothing is payable if disability is the result of "willful neglect" or

"intentional misconduct." If there is doubt as to the permanence of a disability, the member may be placed on a "temporary disability retired list" for up to 5 years, with pay being at least 50 percent of active pay.

In 1969 the average civilian American lost 5.2 working days per year due to illness or injury.

To protect yourself against loss of income resulting from sickness, injury or continuing disability, you might consider purchasing insurance if the Air Force were to change this benefit. As with other insurance, a great many plans with different features and costs are available. Two plans with typical kinds of restrictions--and costs--are shown below:

(a) Coverage limited to 50% of current income. Payments may be made for life, in case of accident; but in case of sickness, payments cannot continue for more than 5 years. In case of sickness the first seven days' loss of income are not covered. The cost of this insurance varies with occuptational category (risk), and with the amount of income you want to insure. Costs below are approximate monthly costs for each $100 of monthly income you want to insure.

Age	Low risk (e.g., office personnel)	High risk (e.g., mechanics)
20	$2	$3
30	$3	$4
40	$4	$6
45	$5	$8

(b) This plan has similar features, except that the first 30 days' loss of income (accident or sickness) are not covered, but payment, in the event of sickness, may continue to age 65.

Age	Low risk	High risk
20	$2	$3
30	$3	$4
40	$4	$6
45	$6	$7

4) Commissary Privileges

Many Air Force installations have Commissaries, which offer for sale merchandise similar to that in civilian supermarkets, at prices below the usual supermarket prices, although the same range

of choice may not be available in the two types of store. Commissaries are open to Air Force members and their dependents.

In a 1967 report it was estimated that average annual savings from the Commissary were as follows:

Pay Grade	Family Size 1	2	3	4	5	6
E-1, E-2, E-3	$57	$94	$88	$93	$86	$131
E-6, E-7, O-1, O-2	68	147	172	202	212	251
O-5, O-6	-	186	135	271	271	345

A report based on 1973 data would probably generate higher numbers.

It has also been estimated that the price differential between Commissary and supermarket is 20 - 30%.

5) Base Exchange and Related Privileges

Every Air Force installation, regardless of size, has an exchange. Larger exchanges sell a wide assorment of quality merchandise at substantial savings, and offer such services as taxi, auto service station, laundry and dry cleaning, tailor shop, beauty and barber shop, appliance and shoe repair shop. Exchanges and related facilities are open to Air Force members and their dependents.

In a 1967 report it was estimated that average annual savings from the Base Exchange and related facilities were as follows:

Pay Grade	Family Size 1	2	3	4	5	6
E-1, E-2, E-3	$33	$43	$63	$72	$61	$95
E-6, E-7, O-1, O-2	134	153	185	202	195	224
O-5, O-6	179	236	303	343	329	220

A report based on 1973 data would probably generate higher numbers.

6) Food (Including Subsistence Allowance)

Food is ordinarily furnished by the Air Force, to Air Force members. When rations in kind are not available a subsistence allowance of $2.57 per day is furnished. This includes instances where it is impracticable for subsistence in kind to be furnished, even though messes may be operating at the base to which the Air Force member is assigned. Permission to ration separately may be given, even though rations are available, at the request of the Air Force member, in which case the Air Force will pay $43.80 per month,

subject to minor fluctuations. Such subsistence allowances are generally granted to airmen who are married. Officers receive a monthly subsistence allowance of $47.88.

In 1970 (civilian) expenditures on food were about 1/6 of personal income after taxes. In the same year, a moderate cost food plan for a couple under 35, involved a monthly cost of $100. With two children (6-11 years old) the cost was $169 per month. The price increase in food has been at least 15% in three years.

7) Housing (Including Housing Allowance)

Rent-free housing and utilities are provided for single Air Force men; and, when available, Government-owned quarters (and free utilities) are provided for married airmen serving in grades E-4 or above. The size of the quarters, when available, is contingent on the size and composition of the member's family. If surplus quarters are available housing may be provided for airmen of lower grades. In addition to quarters, Government-owned furnishings may be provided to those who do not have their own furnishings. For married members without base housing, or others authorized to live off-base, a Basic Allotment for Quarters (BAQ) is provided based on pay grade and number of dependents. When Government-provided housing is considered substandard, adequate government quarters are not furnished. The magnitude of the monthly BAQ varies from $60 for an E-1 to about $131 for an E-9, plus $45-53 if the Air Force member has dependents. For officers, the BAQ ranges from $109 to $230, plus $33-58 for dependents.

In 1969 the average (civilian) monthly housing cost, for a moderate urban living standard for a four-person family, was $208. The price increase for housing has been about 20% in four years.

8) Off-duty, Air Force Administered, Recreation

A wide range of leisure-time opportunities and activities are provided to help stimulate, develop and maintain the physical, mental and social well-being of the Air Force community. It is Air Force policy to provide personnel and their families self-rewarding, creative recreation programs equal in variety and quality to the best offered in the most progressive civilian communities. Many of these programs are paid for entirely by the Air Force, while others are subsidized by the Air Force. The Air Force Recreation Program includes:

(a) Sports. Sports programs provide opportunities for instruction, participation and varsity competition for men and women. The Air Force schedules championships or training camps in badminton, basketball, bowling, golf, judo, softball, tennis, track and field, volley ball, chess, wrestling and model airplanes.

(b) Service Clubs. Service clubs provide recreational, cultural and creative activities for Air Force personnel and their families. Activities include parties, dances, tournaments, contests, holiday observances, lectures, dramatic and musical activities. The Air Force Entertainment Program provides opportunities for live musical and theatrical activities. An annual Air Force talent contest is held each year.

(c) Art, Crafts and Hobbies. The arts and crafts program generally includes an automotive hobby shop, woodworking shop, and electronics hobby shop. The program also includes photography, and there is an annual Air Force photography contest.

(d) Dependent Youth Activities. These include directed activities such as arts and crafts, social activities, self-expression activities, educational activities, cultural activities, service activities, and religious activities.

(e) Recreation Areas and FAMCAMP. The Air Force operates more than 50 recreation areas for such activities as hunting, fishing, camping, picnicking and boating. An Air Force FAMCAMP is a parcel of land on, or adjacent to, an Air Force installation, for transient recreational vehicles, or for short-term tent camping. It is a program for the whole family, to enjoy travel, sightseeing and outdoor recreation while keeping expenses to a minimum.

(f) Special Interest Groups. These include such clubs as sports car, motorcycle, power boat, rod and gun, and parachute.

(g) Aero Clubs. Air Force personnel and dependents can enjoy safe, low cost recreation flying. Aero clubs offer complete training programs through which members can learn to fly or work on advanced FAA ratings.

(h) Libraries. Library service is provided at each Air Force base.

(i) Motion Picture Theatres. Most Air Force installations have theatres showing first run films at reasonable prices.

(j) Open Messes. NCO and Officer clubs provide dining facilities and social activites. Nearly all of them provide day care centers for children of working mothers for a minimal fee. The open mess operations and social activities are financed almost entirely from

income generated by sale of goods and services.

In 1969 the annual per capita (civilian) expenditure for recreational facilities, consisting of clubs and fraternal organizations, motion picture theatres, and participant amusements (billiards, pool, golf, swimming, etc.) was not quite $20. This excludes some major items which are often considered in recreation, e.g., expenditures for television sets.

9) Air Force Assisted Educational Opportunities

Air Force educational opportunities, other than technical training conducted at Air Force schools and on-the-job training, can be described under five categories. These are as follows:

(a) U. S. Armed Forces Institute (USAFI). More than 200 high school and junior college correspondence courses are available through USAFI. An airman may take as many as desired, as long as course work is satisfactory. More than 6400 college correspondence courses are available through USAFI. Enrollement for these is through USAFI, but the actual instruction, assignments and grading are done by an accredited college. An initial fee of $5.00 is charged, but all subsequent costs are Government paid.

(b) Extension Course Institute (ECI). ECI provides technical correspondence courses to train Air Force personnel for specific duties. ECI courses are free and available to all Air Force personnel.

(c) Operation Bootstrap and G.I. Bill. Operation Bootstrap is a program which allows active duty members to complete work for a high school diploma or to pursue college credits toward a degree. Under this program the Air Force pays up to 75% of the tuition. Airmen who have completed one year or more of active duty, and who undertake additional service commitment, may be granted temporary duty to attend college for up to a year, to complete degree requirements. Bootstrap funds are limited, and priority goes to students pursuing studies meeting current Air Force needs and requirements. This program is backed up by G.I. Education Bill entitlements which also provide financial assistance to airmen attending college while on active duty.

(d) Airman Education and Commissioning Program. Selected members of the Air Force, who have served at least one year on active duty, may be assigned to a college of their choice to complete an undergraduate degree. Applicants must have accrued 30 semester-hours or 45 quarter-hours to be considered. Upon selection, the airman is promoted to the rank of staff sergeant or higher rank. Full pay and allowances are paid, as well as tuition, fees and books. Upon graduation, the candidate goes to OTS for 3 months and then receives a commission.

(e) Air Force Institute of Technology (AFIT). Under AFIT, the Air Force provides educational advancement for officer (and civilian) personnel in scientific, technological, managerial, medical, and other professional areas required by the Air Force. Some of the opportunities lead to degrees at the master's and doctorate level. AFIT courses are conducted at Wright Patterson AFB, and at more than 340 civilian colleges, universities, hospitals and industries.

The average tuition cost for a semester-hour, in 1970, at a private institution (2-year and 4-year schools) was $61. At public institutions the average tuition cost of a semester-hour was $12.80.

The total cost (tuition, fees, room and board) for a year at a private college averaged $3001. At a public institution it averaged $1356.

10) Servicemen's Group Life Insurance (SGLI) and Survivor's Benefits

Active duty servicemen are issued life insurance in the amount of $15,000, unless they state in writing that they want either $10,000 or $5,000 or no coverage. Insured members may name the beneficiaries, and, in the event of death, benefits may be paid in a lump sum or in 36 equal monthly payments. SGLI is convertible to a permanent plan at standard rates, after separation from the Air Force, without proof of good health. If an airman dies on active duty, his survivors are paid a sum equal to 6 months' pay (greater than $800 and less than $3,000) to meet immediate expenses and readjust themselves. In addition, there is a right to burial in a national cemetery at no cost to next-of-kin, and an allowance for certain specific expenses incidental to burial (not to exceed $500).

Life insurance (5 year convertible term) can be purchased privately for the following rates:

Age	Monthly cost per $5000 coverage
20	$2.40
25	2.45
30	2.45
35	2.75
40	3.40
45	4.40
50	6.20
55	9.00

In 1961 the average cost of a funeral was estimated at $1450. Since then funeral prices are estimated to have increased about 50%.

11) Home Loan Insurance

If a member has been on extended active duty for at least two years, and requires housing to be occupied by his family as a home, he may finance the purchase of a home with an FHA insured loan. The FHA will insure the loan to protect against default, so the lender is willing to lend over long periods with low down payments and at moderate interest rate. The cost of such insurance is ordinarily paid by the borrower, but the Air Force pays the insurance premium of 1/2 of 1 percent of the average annual unpaid balance. The maximum mortgage insurable under this program is $30,000.

The dollar amount of this benefit depends on the amount of the outstanding mortgage, ranging from $2.80 per month for a mortgage of $6750 to $12.43 per month on the maximum FHA mortgage. The average payment reported in 1967 was $5.63 per month.

12) Off-Duty Transportation Privileges

Off-duty transportation is free on military aircraft, on a "space available" basis. On civilian aircraft the fare is one-half of the civilian fare, on a "space available" basis; two-thirds on a reserved basis.

The average passenger-mile rate for U. S. domestic flights in 1969 was $0.059, so that the advantage of 1/2 fare travel was about 3¢ per mile.

13) Retirement Benefits

Air Force members are entitled to retirement pay after 20 years of service. In general, the monthly retirement benefit is 2.5% of basic

monthly pay at time of retirement, multiplied by number of years of service (from 20 to 30 years). Therefore, after 20 years the retirement benefit is 50% of basic pay, while after 30 years of service the retirement is 75% of basic pay, for the lifetime of the Air Force member.

The retired Air Force member may ensure that part of his retirement benefit will be paid, after his death, to his widow and children under 18 (or incapable of self-support), by accepting a reduced retirement income during his own lifetime. Social Security benefits are also provided to widows with children under 18, and to any widow at age 62.

Retired Air Force members and their dependents are also entitled to:

(a) Free medical and dental care in military facilities, on a space available basis; civilian hospital care, at 25% of cost; other medical care, at a cost of up to $50 per person ($100 per family), plus 25% of costs in excess of $50 per person ($100 per family).

(b) Base Exchange and Commissary privileges

(c) Membership in NCO clubs.

(d) Base theatre privileges.

In addition, Air Force members, but not their dependents, are entitled to:

(a) Free travel within the U. S., on Department of Defense aircraft, on a space available basis.

(b) After six months, transfer to equivalent Civil Service (GS) rate, with seniority, if employed as a civilian by the Federal Government.

The following table shows how much money an Air Force member would have to set aside each month to accumulate enough money in the bank so that, at retirement, he could purchase an annuity which would pay him at the same rate as his retirement pay. The figures in the table are based on the assumption that the person enters the Air Force at 20, the bank pays 5%, and the annuity is purchased at an insurance company.

At Retirement				Monthly Payment to Bank While in Service, To Purchase Equivalent Benefit
Age	Rank	Yrs in AF	Monthly Benefit	
40	E-5	20	$ 279	126
	E-6		329	148
	E-7		374	168
	E-8		424	191
	E-9		483	217
	O-5		813	366
	O-6		899	404
45	E-5	25	349	102
	E-6		411	120
	E-7		498	146
	E-8		560	164
	E-9		635	186
	O-5		1052	307
	O-6		1189	347
50	E-5	30	419	82
	E-6		493	96
	E-7		672	131
	E-8		747	146
	E-9		836	164
	O-5		1262	247
	O-6		1547	303

14) Annual Leave

Members of the Air Force earn 2-1/2 days leave per month of active duty service (30 days per year). The total leave accrued may not exceed 60 days on 30 June each year. Upon leaving the service, or reenlisting, unused leave (up to 60 days) may be taken in cash. In addition to the 30 days annual leave, 3-day passes and legal holidays may be given.

15) Federal Income Tax Concessions for Armed Forces

Food, housing, subsistence allowances and housing allowances are not subject to Federal Income Tax. The tax advantage accruing to servicemen therefore varies with his income, family size, and other personal circumstances.

The following is an illustrative table showing the additional amount of income one would need to have, if the tax concession were not present, to be equally well off. The calculations are based on:

(a) Standard exemptions and deductions.
(b) Filing of a joint return when married.
(c) No other income or tax credits.
(d) Income consists only of base pay, housing allowance, and subsistence.

	Additional Monthly Income
E-5 with more than 4 years service, (married, 2 children)	$28
E-6 with more than 10 years service, (married, 3 children)	$42
E-8 with more than 16 years service, (single)	$64
O-3 with more than 4 years service, (married, 2 children)	$68

AIR FORCE BASIC PAY RATES
(Monthly, to nearest dollar)

Pay Grade	Under 2	YEARS OF SERVICE 2	3	4	6	8	10	12	14	16	18	20	22	24
0-10	2415	2500	2500	2500	2500	2596	2596	2795	2795	2995	2995	3195*	3195*	3394*
0-9	2141	2197	2244	2244	2244	2300	2300	2396	2396	2596	2596	2795	2795	2995
0-8	1939	1997	2045	2045	2045	2197	2197	2300	2300	2396	2500	2596	2700	-
0-7	1611	1721	1721	1721	1797	1797	1902	1902	1997	2197	2348	-	-	-
0-6	1194	1312	1398	1398	1398	1398	1398	1398	1445	1674	1759	1797	1902	2063
0-5	955	1122	1199	1199	1199	1199	1236	1301	1388	1493	1578	1626	1683	-
0-4	805	980	1046	1046	1065	1112	1188	1255	1312	1369	1407	-	-	-
0-3	748	836	894	989	1037	1074	1131	1188	1217	-	-	-	-	-
0-2	652	713	856	885	903	-	-	-	-	-	-	-	-	-
0-1	566	590	713	-	-	-	-	-	-	-	-	-	-	-
COMMISSIONED OFFICERS WITH OVER 4 YEARS ACTIVE SERVICE AS AN ENLISTED MEMBER														
0-3	-	-	-	989	1037	1074	1131	1188	1236	-	-	-	-	-
0-2	-	-	-	884	903	932	980	1018	1046	-	-	-	-	-
0-1	-	-	-	713	761	789	818	846	884	-	-	-	-	-
WARRANT OFFICERS														
W-4	762	818	818	836	875	913	951	1018	1065	1103	1131	1169	1208	1301
W-3	693	752	752	761	770	827	875	903	932	960	989	1027	1065	1103
W-2	607	656	656	675	713	752	780	808	836	866	894	922	960	-
W-1	506	580	580	628	656	685	713	742	770	799	827	856	-	-
ENLISTED MEMBERS														
E-9	-	-	-	-	-	-	866	886	906	926	947	965	1016	1115
E-8	-	-	-	-	-	727	747	767	787	807	826	847	896	996
E-7	507	547	568	587	608	627	647	667	698	717	737	747	797	896
E-6	438	478	498	518	538	558	578	608	627	647	657	-	-	-
E-5	385	419	439	458	488	508	528	547	558	-	-	-	-	-
E-4	370	391	413	446	463	-	-	-	-	-	-	-	-	-
E-3	356	375	390	406	-	-	-	-	-	-	-	-	-	-
E-2	342	-	-	-	-	-	-	-	-	-	-	-	-	-
E-1	307	-	-	-	-	-	-	-	-	-	-	-	-	-

*Limited under existing law to $3000

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APPENDIX V

SEQUENTIAL QUESTIONNAIRE, PARTS I AND II

USAF SCN 73 - 117 NON-MONETARY BENEFITS SURVEY

This questionnaire has been developed to help find out how the Air Force can be made more attractive to those who are in it and to those who might become interested in it in the future. The questionnaire deals with various kinds of Air Force compensation or benefits that are not principally in cash form, for example, health benefits.

Although it costs the Air Force a great deal to provide all of these benefits, we do not know how much they are really worth to you. Perhaps you would be better off if you received more in the form of cash, instead of some or all of the benefits which, presently, are not in a current cash form. Possibly you would be better off if the Air Force paid less in cash and improved the non-monetary benefits. The only way we can find this out is to obtain honest, careful and intelligent responses to this questionnaire. No decision has yet been made to modify in any way the system of Air Force benefits, but your answers could have an influence on future planning.

The questionnaire is in two parts. When you have completed Part I, turn it in, and you will then receive Part II. Your Social Security Number is requested to aid in correlating the two parts of the questionnaire, and for other research purposes, but you answers will otherwise remain strictly confidential.

PART I

1. Social Security Number: _____ 2. Age (last birthday): _____

3. Air Force Specialty Code (AFSC)

Duty AFSC: _____ Primary AFSC: _____

4. Length of USAF service: _____ years _____ months

PLEASE CIRCLE THE ANSWERS TO QUESTIONS 5 - 15, BELOW

5. Sex: 1 - female 2 - male

6. Marital Status: 1 - single 2 - married 3 - formerly married

7. Number of dependents, not counting yourself:

(a) Wife and children: 0 1 2 3 4 5 6 or more
(b) Other dependents: 0 1 2 3 4 5 6 or more

8. Pay grade:

E	(Enlisted)	1	2	3	4	5	6	7	8	9
W	(Warrant Officer)	1	2	3	4					
O	(Officer)	1	2	3	4					

9. Highest education achieved so far:

1 - Elementary
2 - High school, did not graduate
3 - High school graduate
4 - College, did not graduate
5 - College graduate, bachelor's degree
6 - Post-graduate degree

10. Income from all sources, MONTHLY, after taxes. (If married, include income of spouse and dependent children):

$0-499 $500-999 $1000-1499 $1500-1999 $2000-2499 $2500 and up

11. Race: 1 - Black 2 - White 3 - Other

12. Religion: 1 - Roman Catholic 2 - Protestant 3 - Jewish 4 - Other

13. Do you consider that your ancestry is principally (circle one only):

1 - British 2 - Irish 3 - Italian 4 - German 5 - Polish
6 - Other European 7 - Latin American 8 - African 9 - All Other

14. Which of your relatives have served in the Armed Forces of the United States, or any other country (circle all that apply):

1 - parent(s) 2 - brother(s), sister(s) 3 - other 4 - none

15. You currently have quarters: 1 - on base 2 - off base

16. Counting everything that the Air Force pays you in cash, except housing and subsistence allowances, how much does the Air Force currently pay you per month, before payment of any Federal Income Tax? (To nearest dollar)

$_____ per month

17. Below is a list of certain Air Force benefits. Nearly everyone in the Air Force will take advantage of some of them, such as Benefit 6 below, since nearly everyone is supplied with food or a subsistence allowance. You may not be in a position to take advantage of certain benefits unless you make certain choices (such as getting married, staying in the Air Force, and so on). Still others depend on luck, such as the

state of your health. How likely is it that you (or your dependents) will take advantage of each benefit?

	Very likely	Likely	Un-likely	Very un-likely	No idea what bene-fit is
1) Dependents' health benefits	☐	☐	☐	☐	☐
2) Health care of Air Force members	☐	☐	☐	☐	☐
3) Pay while sick or disabled	☐	☐	☐	☐	☐
4) Commissary privileges	☐	☐	☐	☐	☐
5) Base Exchange and related privileges	☐	☐	☐	☐	☐
6) Food (including subsistence allowance)	☐	☐	☐	☐	☐
7) Housing (including housing allowance)	☐	☐	☐	☐	☐
8) Off-duty AF-administered recreation (incl. clubs)	☐	☐	☐	☐	☐
9) Educational benefits, except job training	☐	☐	☐	☐	☐
10) Servicemen's Group Life Insurance	☐	☐	☐	☐	☐
11) Home loan insurance	☐	☐	☐	☐	☐
12) Off-duty air travel privileges	☐	☐	☐	☐	☐
13) Retirement benefits	☐	☐	☐	☐	☐
14) Annual leave	☐	☐	☐	☐	☐
15) Federal Income Tax break for Armed Forces	☐	☐	☐	☐	☐

18. Below is a list of Air Force benefits. Using the following key check the column that applies to you, after each benefit:

Column a: Have no idea what the benefit is
Column b: Have some idea what the benefit is
Column c: Have good idea what the benefit is
Column d: Have complete understanding of the benefit

	a No idea	b Some idea	c Good idea	d Complete under-standing
1) Dependents' health benefits	☐	☐	☐	☐
2) Health care of Air Force members	☐	☐	☐	☐
3) Pay while sick or disabled	☐	☐	☐	☐
4) Commissary privileges	☐	☐	☐	☐
5) Base Exchange and related privileges	☐	☐	☐	☐
6) Food (including subsistence allowance)	☐	☐	☐	☐
7) Housing (including housing allowance)	☐	☐	☐	☐
8) Off-duty AF-administered recreation (incl. clubs)	☐	☐	☐	☐
9) Educational benefits, except job training	☐	☐	☐	☐
10) Servicemen's Group Life Insurance	☐	☐	☐	☐
11) Home loan insurance	☐	☐	☐	☐
12) Off-duty air travel privileges	☐	☐	☐	☐
13) Retirement benefits	☐	☐	☐	☐
14) Annual leave	☐	☐	☐	☐
15) Federal Income Tax break for Armed Forces	☐	☐	☐	☐

19. Some or all Air Force benefits could be reduced or eliminated without injuring you in any way, because the Air Force could probably make you feel just as well off as you do now by giving you more in your paycheck. All of the benefits that the Air Force supplies are made possible by the expenditure of money, so if you have enough money of your own you can ordinarily buy what the Air Force now gives away in benefits. For instance, if the Air Force were to cut out health care of Air Force members, and increased your pay sufficiently, you could buy any amount and quality of medical care you wanted, through insurance and/or your own resources. No matter how much you may value this benefit, it certainly isn't "priceless."

Furthermore, if the Air Force were to give you cash instead of a benefit, you wouldn't have to spend the money for the things that are included in the benefit. For example, you might believe that a pay increase obtained in exchange for health benefits would be best spent on a vacation each year, or for increasing your savings. The only questions of interest here relate to <u>how much increase in pay</u> you would require, in exchange for benefits, to make you feel <u>exactly as well off as you do now</u>. Do not worry about whether the Air Force would actually pay as much as you write down, even if the amount is very great. We estimate that we have provided enough space for at least six digits in your response--from zero up to $999,999 per month for each benefit--if you wish.

Some benefits may appear to "apply" only to people in a special category, such as people with dependents. However, even if you are single, you may be worse off if such a benefit is eliminated, since there may be a <u>chance</u> that you will have dependents later in your Air Force career. It is desired that you specify the pay increases that would be required to compensate you for <u>every</u> change in benefits discussed below.

THERE IS NO PREDICTABLE ADVANTAGE IN EITHER OVERSTATING OR UNDERSTATING THE VALUE OF A CHANGE TO YOU. IF YOU OVERSTATE IN THE HOPE OF A SUBSTANTIAL PAY INCREASE (INSTEAD OF A BENEFIT), IT IS JUST AS LIKELY TO CAUSE THE AIR FORCE TO CONCLUDE THAT A BENEFIT WHICH IS SO VALUABLE SHOULD NOT BE CHANGED AT ALL. IF YOU UNDERSTATE YOU MAY HELP TO BRING ABOUT A PAY CHANGE, BUT THE PAY CHANGE MAY BE SO SMALL THAT YOU COULD EASILY LOSE BY THE CHANGE.

Remember: if you plan to end your Active Duty Air Force career in, say, 5 years (or 60 months) from now, the estimated <u>total</u> amount you will have received to compensate for a benefit change, by the time you leave the service, will be 60 times the (monthly) amount you write down for that benefit. This is true for every benefit change. This means that, if the retirement benefit is eliminated, for example, you will receive nothing after your Active Duty terminates, but the compensatory pay increase would take place every month between now and the time you leave Active Duty. Benefits under the GI Bill are not affected by any change discussed, and you should assume no further inflation.

Please give intelligent and realistic responses, so that it <u>really</u> makes no difference to you whether (a) there is no change in the benefit system and no change in pay, or (b) a benefit is changed and you receive the pay increase you write down.

For each change in benefits below, write down the monthly pay increase (to the nearest dollar) required to make you feel exactly as well off as you feel now. If no increase would be required, write "0" in the space provided. If $1,000,000 or more per month would be required, write "P" (for "priceless") in the appropriate space. Leave the answer blank <u>only if you have no idea what the benefit is</u>.

1) If all health benefits for dependents were eliminated, so that any health care for dependents had to be purchased from civilian sources? $ _____ per month

2) If all health care were eliminated for Air Force members, except that required in combat zones, so that all other health care had to be purchased from civilian sources? $ _____ per month

3) If the right to receive pay and allowances, while absent from duty because of sickness or disability, were eliminated? $ _____ per month

4) If the Commissary were eliminated, so that all such purchases had to be made from civilian sources? $ _____ per month

5) If Base Exchange privileges, and all related services (such as laundry, gas station, etc.) were eliminated, so that all such purchases had to be made from off-base civilian sources? $ _____ per month

6) If the Air Force stopped providing food, and also stopped subsistence allowances, but, where necessary, established commercially operated eating places to permit meal purchases by Air Force personnel? $ _____ per month

7) If the Air Force stopped providing housing, and also stopped housing allowances, so that housing had to be obtained privately by <u>all</u> Air Force personnel? $ _____ per month

8) If all off-duty recreation administered by the Air Force, such as sports and clubs, were eliminated, and members of the Air Force therefore had to use civilian facilites, on the same basis as civilians? $ _____ per month

9) If all Air Force educational benefits, other than job training, were eliminated, so that education was available on the same terms as for civilians? $ _____ per month

10) If Servicemen's Group Life Insurance were abolished, as well as the death benefits currently provided by the Air Force? $_____ per month

11) If the Air Force were to eliminate payments for home loan insurance? $_____ per month

12) If off-duty Air Force air travel privileges, (including reduced commercial air rates), were eliminated? $_____ per month

13) If all Air Force retirement benefits, other than Social Security, were eliminated (except for those already retired)? $_____ per month

14) If the amount of annual leave earned from now on were cut in half? $_____ per month

15) If Federal Income Tax breaks, available only to those in the Armed Forces, were eliminated? $_____ per month

20. If all changes in benefits in Question 19 were to be made, how much indrease in monthly cash pay would be required to make you feel as well off as you feel now? (Exclude any benefit change for which you have not shown a dollar amount in Question 19). $_____ per month

21. If you were to remain on Active Duty in the Air Force until retirement, how much cash would you expect to receive from the Air Force, per average month from now till retirement? (Include pay, bonuses, and allotments, before deduction of Federal Income Tax, but exclude allowances for subsistence and housing). $_____ per month

22. If you were to leave the Air Force now, how much would you expect to earn from civilian employment, per average month from now till retirement?

(a) In cash (before taxes) $_____ per month

(b) In other benefits--dollar value, excluding 15 days' leave $_____ per month

(c) In total cash and other benefits, excluding 15 days' leave $_____ per month

23. If you were to leave the Air Force now, and you had not received whatever job training Active Duty has given you, how much would you expect to earn from civilian employment, per average month from now till retirement?

Total cash and other benefits, excluding 15 days' leave $_____ per month

PART II

Please repeat your Social Security Number: _____

24. In this question you are asked to compare various features of Air Force and civilian life. Complete each statement below by checking one of the columns.

	Far better inside USAF	Better inside USAF	About same inside USAF	Worse inside USAF	Far worse inside USAF
1) Health benefits for my dependents are	☐	☐	☐	☐	☐
2) My health benefits are	☐	☐	☐	☐	☐
3) My pay while sick or disabled is	☐	☐	☐	☐	☐
4) The food I usually eat is	☐	☐	☐	☐	☐
5) The housing I usually live in is	☐	☐	☐	☐	☐
6) The recreational facilities (incl. clubs) I usually have are	☐	☐	☐	☐	☐
7) The opportunity for continuing my education is	☐	☐	☐	☐	☐
8) The terms on which I can obtain life insurance are	☐	☐	☐	☐	☐
9) The terms on which I can buy a home are	☐	☐	☐	☐	☐
10) The terms on which I can travel are	☐	☐	☐	☐	☐
11) The retirement benefits I am entitled to are	☐	☐	☐	☐	☐
12) The amount of paid annual leave I have is	☐	☐	☐	☐	☐
13) The Federal tax breaks I have are	☐	☐	☐	☐	☐
14) The value of all non-monetary benefits is	☐	☐	☐	☐	☐
15) The money I earn (cash, including bonuses) is	☐	☐	☐	☐	☐
16) The total value of pay and other benefits is	☐	☐	☐	☐	☐
17) The security I have is	☐	☐	☐	☐	☐
18) The number of hours I usually work is	☐	☐	☐	☐	☐
19) My opportunities for advancement are	☐	☐	☐	☐	☐
20) My physical safety is	☐	☐	☐	☐	☐
21) The respect I receive from the public is	☐	☐	☐	☐	☐
22) My personal freedom is	☐	☐	☐	☐	☐
23) The satisfaction I receive from my job is	☐	☐	☐	☐	☐
24) The service I render to others is	☐	☐	☐	☐	☐
25) The preparation I receive for a future career is	☐	☐	☐	☐	☐
26) The recognition I receive for my achievements are	☐	☐	☐	☐	☐
27) The guidance and supervision I receive are	☐	☐	☐	☐	☐
28) My family and social life are	☐	☐	☐	☐	☐
29) My family believes my future is	☐	☐	☐	☐	☐

25. Of the factors listed in Question 24, numbered from 1 to 29, identify below the three which are most important to you in deciding whether or not to remain in the Air Force. First choose the most important factor and write in its number (from 1 to 29), then choose the next most important, and then the third most important.

Most important factor_____
Second most important factor_____
Third most important factor_____

26. Check the one statement below which best describes your intentions:

1) I definitely intend to get out of the Air Force as soon as possible.
2) There is about 1 chance in 10 that I will remain in the Air Force till retirement.
3) There are about 2 chances in 10 that I will remain in the Air Force till retirement.
4) There are about 3 chances in 10 that I will remain in the Air Force till retirement.
5) There are about 4 chances in 10 that I will remain in the Air Force till retirement.
6) There is about a 50-50 chance that I will remain in the Air Force till retirement.
7) There are about 6 chances in 10 that I will remain in the Air Force till retirement.
8) There are about 7 chances in 10 that I will remain in the Air Force till retirement.
9) There are about 8 chances in 10 that I will remain in the Air Force till retirement.
10) There are about 9 chances in 10 that I will remain in the Air Force till retirement.
11) I definitely intend to remain in the Air Force till retirement.

27. Do not answer this question if you definitely intend to remain in the Air Force till retirement. Would you remain in the Air Force if you could obtain (answer all parts):

1)	A sufficiently large bonus or increase in salary?	Yes	No
2)	Sufficiently rapid promotions?	Yes	No
3)	A choice of Air Force locations?	Yes	No
4)	A choice of job assignments for which you are qualified?	Yes	No
5)	A shorter period of service?	Yes	No
6)	Guaranteed non-combatant status?	Yes	No
7)	Better living conditions?	Yes	No
8)	Less severe military discipline?	Yes	No
9)	More or improved recreation (including clubs)?	Yes	No
10)	Some combination of Items 1) through 9)?	Yes	No

28. Would you have chosen to join the Air Force if there had been no military draft? (Circle one)

1 - Yes 2 - Probably 3 - Probably not
4 - No 5 - Does not apply (was not subject to draft)

APPENDIX VI
INSTRUCTIONS TO CBPO'S
SAMPLE SELECTION AND SURVEY ADMINISTRATION

CBPO INSTRUCTIONS

SAMPLE SELECTION AND SURVEY ADMINISTRATION

This attachment provides sample selection and administrative details to be used by each CBPO. Please read this whole set of instructions very carefully before attempting to identify or administer to the sample. For some of the categories there will not be the required number of personnel assigned to your base. The shortages are to be filled in a specific manner. There are several notes after the listing of required sample sizes that explain how to fill the shortages that will exist for your CBPO in these certain categories.

Sample Selection

Select the designated number of names from each of the following categories used in the study. Select the first designated number of names for each category from the pass of the personnel file. For example, select the first 44 male single E-2s encountered in your pass through the personnel file.

Enlisted Personnel - Male

Category 1: 44 male E-2s assigned to CBPO who have never been married (marital status = single)

Category 2: 44 male E-2s assigned to CBPO other than Category 1 (marital status = all others but single)

Category 3: 11 male E-3s assigned to CBPO who have never been married

Category 4: 11 male E-3s assigned to CBPO other than Category 3.

Category 5: 17 male E-4s assigned to CBPO who have never been married

Category 6: 17 male E-4s assigned to CBPO other than Category 5

Category 7: 16 male E-5s assigned to CBPO who have never been married

Category 8: 16 male E-5s assigned to CBPO other than Category 7

Category 9: 25 male E-6s assigned to CBPO who have never been married

Category 10: 25 male E-6s assigned to CBPO other than Category 9

Category 11: 13 male E-7s assigned to CBPO who have never been married

Category 12: 13 male E-7s assigned to CBPO other than Category 11

Category 13: 4 male E-8s assigned to CBPO who have never been married

Category 14: 4 male E-8s assigned to CBPO other than Category 13

Category 15: 2 male E-9s assigned to CBPO who have never been married

Category 16: 2 male E-9s assigned to CBPO other than Category 15

Officer Personnel - Male

Category 17: 10 male O-1s assigned to CBPO who have never been married (marital status = single)

Category 18: 10 male O-1s assigned to CBPO other than Category 17 (marital status = all others but single)

Category 19: 8 male O-2s assigned to CBPO who have never been married

Category 20: 8 male O-2s assigned to CBPO other than Category 19

Category 21: 26 male O-3s assigned to CBPO who have never been married

Category 22: 26 male O-3s assigned to CBPO other than Category 21

Category 23: 24 male O-4s assigned to CBPO who have never been married

Category 24: 24 male O-4s assigned to CBPO other than Category 23

Category 25: 14 male O-5s assigned to CBPO who have never been married

Category 26: 14 male O-5s assigned to CBPO other than Category 25

Category 27: 6 male O-6s assigned to CBPO who have never been married

Category 28: 6 male O-6s assigned to CBPO other than Category 27

Female (Officer and Enlisted Personnel

Category 29: 44 female personnel--current grade or marital status is not differentiated for this category. Use the last digit of the Social Security Number to select personnel. Start with those ending in 1 first. If less than 44 are found, then use 2 next, and so on until 44 names are identified.

If more than 44 are found ending in 1, discard those with the last two digits ending in 91 first, 81 second, and so on until only 44 names remain.

Note: Shortages in Categories 9, 11, 13, 15

For Categories 9, 11, 13, and 15 the number of selected names may be short of the desired number of selected names (fewer than desired single E-6s or E-7s or E-8s or E-9s assigned to your CBPO). The sum total of these 4 categories (9, 11, 13, 15) must add to 44. Therefore, if there are less than the 44 required number of names selected, use the still available (not previously selected) personnel in any of the 4 categories to fill the various vacancies remaining. If, after this procedure, there are still shortages in any of the categories--9, 11, 13, 15--then go to the category whose rank is the same as that category for which there is still a shortage (9 short--go to 10, 11 short--go to 12, 13 short--go to 14, 15 short--go to 16) and select the necessary number of still available names to fill the shortage.

Categories 9, 11, 13 and 15 are the only ones in the enlisted ranks for which you may not have the necessary number of personnel assigned to your CBPO to meet the required number of personnel within these categories. For all of the remaining enlisted categories, you should have no trouble in identifying the required number of names for participation in the survey.

Note: Shortages in Categories 23, 25, 27

For Categories 23, 25, and 27 the initial number of selected names may be short of the required number of selected names (fewer than desired number of single O-4s or O-5s or O-6s assigned to your CBPO). In almost every case, you will be considerably short in all of the categories (23 and 25 and 27). Go to the category of associated rank (24 for 23, 26 for 25, and 28 for 27) and select the necessary number of names to fill the shortage from the non-selected set of names still available (remembering that a set of names has already been selected to fill that specific category's requirement, i.e., 24 majors who are or have been married have already been selected to fill Category 24's, majors other than Category 23, requirements).

Note: Desires

The number of desires may be cut in half by coding them such that with one pass the required number both for 'single' and 'all others' categories of the same associated grade are obtained (i.e., Category 1 and Category 2 for E-1s). Care should be taken, however, to insure that

each of the categories receives the required number of selected personnel. It may be possible to reduce the number of desires even further with manipulation of the coding, but again care must be taken to insure that each and every category has the required number of personnel selected.

Note: Suggestion

Select all single male personnel in the grades of E-6, E-7, E-8, E-9 and O-4, O-5, O-6 (Categories 9, 11, 13, 15, 23, 25, 27) initially. In most cases they all will be used to fill the required number for those specific categories. In addition, initially select twice the number required in the married or was married category of associated rank for each of the above grades (Categories 10, 12, 14, 16, 24, 26, and 28, respectively). This will give you ready availability of names to fill the shortages that will occur in some 'single' categories (9, 11, 13, 15, 23, 25, 27--or E-6, E-7, E-8, E-9, O-4, O-5, O-6).

Attachments 3 and 4 may help to clarify the situation for your CBPO.

Population

Count all personnel assigned to your CBPO who fall into each category defined in the sample list and record the number obtained on Attachment 2, Tally Sheet (the distribution itself should resemble the number contained in Attachment 4).

Questionnaire Administration

The basic requirement is that the respondent be able to give thoughtful, unhurried and independent responses. The questionnaire should be administered in a group administration situation. No time limit should be imposed upon the respondents, but at least one hour should be scheduled. The persons asked to complete the questionnaire should be notified to report to a location where surveyed individuals can be under the supervision of the Survey Control Officer or his representative (i.e., conduct the survey in an auditorium, theater, or testing office). Where possible, effort should be made to administer the survey to personnel in the upper grades at locations that would minimize their travel and time away from their missions. This may be done by working with blocks of functional units, blocks of geographical locations, or whatever other method may seem appropriate.

The questionnaire package consists of two parts: Part I and Part II. Part I must be issued, completed and returned to the monitor before Part II is issued. When Part II has been returned, please arrange the responses so that, for each individual, Part I is followed by Part II. (Note: Bases which are sent an "information package" should distribute it to each respondent with Part II).

Return of Completed Questionnaires

The suspense date for completion and return of all survey instruments has been set and approved by Hq USAF/ACMR as 13 August 1973. Please enclose with each package of completed surveys, Attachment 2 (Tally Sheet) showing the name of your base, the date, and the number of questionnaires in the package. A return address label has been enclosed with this package of surveys.

Communications Pertaining to the Survey

If you have any problem pertaining to the survey, we urge the use of the telephone. Such questions should be addressed to the Contract Monitor:

1st Lt James F. Roach
Air Force Human Resources Laboratory (AFSC)
Personnel Research Division
Lackland AFB, Texas 78236
Autovon 473-4106

APPENDIX VII

DATA TABULATIONS

TABLE IV: DECILE VALUES FOR THE DISTRIBUTIONS OF AGE, LENGTH OF SERVICE, AND AIR FORCE INCOME

DECILE NUMBER	LENGTH OF SERVICE (months)		AGE (years)		AIR FORCE INCOME ($ per month)	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
1		6		19		307
2	7	11	20	20	308	342
3	12	18	21	22	343	356
4	19	30	23	23	357	436
5	31	48	24	26	437	560
6	49	80	27	29	561	657
7	81	155	30	34	658	818
8	156	212	35	37	819	1036
9	213	240	38	41	1037	1400
10	241		42		1401	

TABLE V: MEAN VALUATIONS OF BENEFITS BY AGE DECILE[a]

(dollars per month)

NAME OF BENEFIT	AGE DECILE									
	1	2	3	4	5	6	7	8	9	10
Dependent Health	259	224	181	193	164	170	186	215	186	175
Personal Health	234	230	184	171	166	170	153	178	176	167
Sick Pay	230	246	216	209	228	203	244	337	259	318
Commissary	162	153	132	109	103	110	101	115	123	123
Base Exchange	145	138	104	116	91	88	87	95	84	103
Food	174	161	129	126	113	106	107	117	131	129
Housing	254	242	220	214	220	236	252	256	268	285
Recreation	100	93	67	65	53	52	60	64	53	69
Education	280	211	185	172	137	110	97	105	95	76
Life Insurance	162	128	126	107	74	66	82	112	105	108
Home Loan Ins.	210	153	131	105	84	69	72	78	71	66
Travel	168	128	109	100	78	70	59	76	63	57
Retirement	488	470	403	386	440	495	590	1132	1584	1687
Leave	232	191	186	170	166	189	187	221	253	204
Tax Break	167	155	141	123	103	123	111	107	148	115
Training	64	81	-200	-16	-24	16	87	213	283	-94

[a]See Table IV for age groupings.

TABLE VI: MEAN VALUATIONS OF BENEFITS BY LENGTH OF SERVICE DECILE[a]

(dollars per month)

NAME OF BENEFIT	LENGTH OF SERVICE DECILE									
	1	2	3	4	5	6	7	8	9	10
Dependent Health	254	209	186	185	194	182	166	224	173	195
Personal Health	229	189	197	181	181	192	160	172	175	175
Sick Pay	244	204	200	211	248	235	259	304	288	342
Commissary	169	123	120	110	152	101	106	116	125	133
Base Exchange	145	109	112	96	127	93	86	103	87	107
Food	174	141	128	119	148	109	103	127	122	142
Housing	265	225	218	210	247	230	251	267	251	293
Recreation	98	66	69	59	82	60	65	67	50	75
Education	288	175	164	160	195	139	101	105	99	89
Life Insurance	145	112	102	91	125	103	79	105	109	109
Home Loan Ins.	184	129	138	95	144	91	79	75	71	73
Travel	181	100	105	75	115	83	69	64	62	70
Retirement	635	397	323	364	431	524	635	1173	1404	1652
Leave	258	166	191	161	193	189	187	216	217	229
Tax Break	164	115	148	130	134	138	102	127	104	138
Training	-72	49	-159	5	-133	13	204	185	295	-80

[a]See Table IV for length groupings.

TABLE VII: MEAN VALUATIONS OF BENEFITS BY SEX

(dollars per month)

NAME OF BENEFIT	SEX	
	Female	Male
Dependent Health	162	199
Personal Health	182	184
Sick Pay	220	258
Commissary	133	125
Base Exchange	114	105
Food	140	131
Housing	238	247
Recreation	84	67
Education	205	143
Life Insurance	98	108
Home Loan Ins.	138	103
Travel	145	86
Retirement	298	803
Leave	188	202
Tax Break	144	128
Training	-58	46

TABLE VIII: MEAN VALUATIONS OF BENEFITS BY MARITAL STATUS

(dollars per month)

NAME OF BENEFIT	MARITAL STATUS		
	Single	Married	Formerly Married
Dependent Health	195	194	217
Personal Health	191	179	179
Sick Pay	227	269	280
Commissary	124	125	163
Base Exchange	117	98	135
Food	143	124	147
Housing	234	254	255
Recreation	81	61	90
Education	182	128	177
Life Insurance	113	102	153
Home Loan Ins.	129	91	150
Travel	119	76	104
Retirement	537	885	841
Leave	195	204	201
Tax Break	131	125	195
Training	53	34	-120

TABLE IX: MEAN VALUATIONS OF BENEFITS BY NUMBER OF DEPENDENTS

(dollars per month)

NAME OF BENEFIT	NUMBER OF DEPENDENTS					
	0	1	2	3	4	5 or more
Dependent Health	198	198	190	195	185	204
Personal Health	195	205	164	181	157	164
Sick Pay	234	247	241	261	315	322
Commissary	128	128	122	116	114	149
Base Exchange	119	117	86	94	81	97
Food	144	137	118	116	111	123
Housing	232	241	233	265	265	287
Recreation	82	64	56	61	53	63
Education	184	171	128	99	98	117
Life Insurance	116	110	93	100	94	116
Home Loan Ins.	132	124	92	67	57	84
Travel	118	97	77	51	57	71
Retirement	495	590	637	1219	1013	1615
Leave	195	186	199	203	219	224
Tax Break	133	142	112	121	116	105
Training	36	-62	-90	72	199	273

TABLE X: MEAN VALUATIONS OF BENEFITS BY PAY GRADE

(dollars per month)

NAME OF BENEFIT	PAY GRADE - ENLISTED								
	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9
Dependent Health	272	208	195	218	185	204	190	182	128
Personal Health	248	199	197	216	191	187	178	155	144
Sick Pay	235	228	219	263	242	319	294	337	463
Commissary	188	131	135	157	132	141	129	110	105
Base Exchange	167	115	108	147	115	115	89	88	65
Food	192	147	137	160	131	155	121	144	126
Housing	280	221	214	248	221	242	233	265	235
Recreation	113	74	74	99	70	84	55	68	46
Education	323	205	181	228	151	148	96	105	77
Life Insurance	157	130	119	149	111	128	80	119	57
Home Loan Ins.	199	157	150	155	106	121	60	70	29
Travel	216	109	109	136	91	94	58	52	32
Retirement	655	371	370	528	524	925	839	550	2501
Leave	265	184	176	204	175	207	186	199	143
Tax Break	186	129	136	172	114	138	86	117	65
Training	2	-117	-2	-83	138	173	277	113	>1000

TABLE X: MEAN VALUATIONS OF BENEFITS BY PAY GRADE (CONT.)

(dollars per month)

NAME OF BENEFIT	PAY GRADE - OFFICERS					
	0-1	0-2	0-3	0-4	0-5	0-6
Dependent Health	155	170	167	185	191	200
Personal Health	140	150	156	160	180	140
Sick Pay	189	216	228	265	312	222
Commissary	81	96	80	95	123	101
Base Exchange	74	82	68	72	97	106
Food	95	107	87	92	120	82
Housing	231	225	237	288	310	346
Recreation	51	45	38	45	57	67
Education	101	118	85	51	68	50
Life Insurance	80	73	61	76	104	82
Home Loan Ins.	45	73	53	51	67	24
Travel	58	53	46	49	54	48
Retirement	480	310	515	1316	2344	1594
Leave	146	224	175	224	287	212
Tax Break	77	92	114	104	186	124
Training	18	-39	195	62	135	-13

TABLE XI: MEAN VALUATIONS OF BENEFITS BY EDUCATION

(dollars per month)

NAME OF BENEFIT	EDUCATION					
	Elementary School	Some High School	High School	Some College	College Degree	Post-Grad. Degree
Dependent Health	134	305	216	172	171	182
Personal Health	134	281	205	171	159	152
Sick Pay	102	331	274	234	229	240
Commissary	181	206	148	117	95	91
Base Exchange	220	156	125	102	83	72
Food	369	179	156	132	97	88
Housing	443	283	240	232	251	271
Recreation	148	129	84	67	47	44
Education	102	261	194	147	93	67
Life Insurance	45	221	127	102	80	70
Home Loan Ins.	27	257	144	98	50	52
Travel	28	210	118	87	53	51
Retirement	515	1168	547	884	770	1067
Leave	928	263	200	197	178	224
Tax Break	70	225	140	131	106	112
Training	556	101	-2	60	48	84

TABLE XII: MEAN VALUATIONS OF BENEFITS
BY INCOME FROM ALL SOURCES

(dollars per month)

NAME OF BENEFIT	INCOME FROM ALL SOURCES (dollars per month)					
	0 to 499	500 to 999	1,000 to 1,499	1,500 to 1,999	2,000 to 2,499	2,500 and over
Dependent Health	215	193	162	201	206	225
Personal Health	202	184	149	194	156	170
Sick Pay	226	255	291	255	263	361
Commissary	143	124	97	114	109	158
Base Exchange	125	104	76	105	78	127
Food	151	130	103	116	119	163
Housing	233	235	259	290	323	272
Recreation	82	70	46	67	43	86
Education	222	133	86	78	56	135
Life Insurance	131	102	82	99	78	93
Home Loan Ins.	161	103	49	67	31	94
Travel	131	85	51	57	41	118
Retirement	430	667	853	2222	1763	665
Leave	195	196	198	207	284	265
Tax Break	143	125	106	133	146	131
Training	34	24	69	147	-29	4

TABLE XIII: MEAN VALUATIONS OF BENEFITS BY RACE

(dollars per month)

NAME OF BENEFIT	RACE		
	Black	White	Other
Dependent Health	323	182	275
Personal Health	308	171	235
Sick Pay	389	239	290
Commissary	213	116	139
Base Exchange	203	95	126
Food	221	122	143
Housing	294	241	268
Recreation	133	61	99
Education	313	129	234
Life Insurance	206	95	172
Home Loan Ins.	234	90	150
Travel	206	78	177
Retirement	599	780	679
Leave	272	193	207
Tax Break	195	122	170
Training	-39	39	74

TABLE XIV: MEAN VALUATIONS OF BENEFITS BY RELIGION

(dollars per month)

NAME OF BENEFIT	RELIGION			
	Roman Catholic	Protestant	Jewish	Other
Dependent Health	219	187	119	188
Personal Health	210	173	122	188
Sick Pay	279	250	168	236
Commissary	135	118	80	134
Base Exchange	123	97	61	111
Food	147	121	71	147
Housing	262	241	231	239
Recreation	76	67	27	67
Education	166	135	80	168
Life Insurance	117	103	40	101
Home Loan Ins.	115	98	25	127
Travel	108	81	37	110
Retirement	729	821	417	598
Leave	210	196	91	213
Tax Break	144	123	112	130
Training	60	52	-405	-59

TABLE XV: MEAN VALUATIONS OF BENEFITS BY ETHNIC GROUP

(dollars per month)

NAME OF BENEFIT	ETHNIC GROUP								
	British	Irish	Italian	German	Polish	Other European	Latin American	African	All other
Dependent Health	167	199	186	183	189	179	307	315	206
Personal Health	151	182	159	160	203	188	239	320	179
Sick Pay	193	262	194	244	333	244	379	387	268
Commissary	96	136	101	115	147	113	186	214	138
Base Exchange	79	120	74	95	105	90	173	219	107
Food	102	150	114	121	125	117	164	225	142
Housing	236	238	233	244	250	250	303	304	237
Recreation	52	70	56	56	62	69	106	133	75
Education	90	141	163	136	166	129	213	312	179
Life Insurance	74	109	68	94	141	96	147	236	123
Home Loan Ins.	70	104	72	89	137	89	159	231	136
Travel	54	93	78	78	97	78	192	200	118
Retirement	874	863	587	847	478	720	845	694	552
Leave	176	215	173	197	223	194	262	271	191
Tax Break	98	141	97	119	136	132	196	208	132
Training	13	81	33	44	-42	-17	-168	-8	153

TABLE XVI: MEAN VALUATIONS OF BENEFITS BY ARMED FORCES RELATIVES

(dollars per month)

NAME OF BENEFIT	ARMED FORCES RELATIVES				
	Parents And Siblings	Parents, No Siblings	Siblings, No Parents	Other	None
Dependent Health	181	194	199	190	219
Personal Health	173	191	183	176	195
Sick Pay	230	235	270	277	282
Commissary	116	129	122	127	135
Base Exchange	89	112	106	108	113
Food	122	136	128	130	142
Housing	230	245	246	253	264
Recreation	63	72	64	75	74
Education	135	163	137	148	148
Life Insurance	96	117	105	101	114
Home Loan Ins.	84	123	91	106	118
Travel	80	105	80	96	92
Retirement	750	601	845	764	973
Leave	194	194	205	202	225
Tax Break	114	136	119	142	132
Training	131	11	-45	8	131

TABLE XVII: MEAN VALUATIONS OF BENEFITS BY QUARTERS LOCATION

(dollars per month)

NAME OF BENEFIT	QUARTERS LOCATION	
	On Base	Off Base
Dependent Health	202	189
Personal Health	188	180
Sick Pay	238	276
Commissary	133	118
Base Exchange	113	98
Food	135	128
Housing	253	237
Recreation	75	61
Education	163	130
Life insurance	118	95
Home Loan Ins.	121	90
Travel	109	73
Retirement	721	776
Leave	210	187
Tax Break	129	128
Training	78	-30

TABLE XVIII: MEAN VALUATIONS OF BENEFITS BY TYPE OF QUESTIONNAIRE

(dollars per month)

NAME OF BENEFIT	QUESTIONNAIRE TYPE			
	Basic	Validating	Educational	Sequential
Dependent Health	191	237	182	177
Personal Health	173	265	175	147
Sick Pay	234	310	246	274
Commissary	121	182	109	99
Base Exchange	100	173	91	77
Food	125	189	121	107
Housing	238	302	240	229
Recreation	64	124	59	45
Education	150	208	109	108
Life Insurance	98	182	86	81
Home Loan Ins.	101	179	74	64
Travel	89	149	65	65
Retirement	714	677	1126	848
Leave	190	258	188	187
Tax Break	117	198	100	117
Training	23	39	4	88

TABLE XIX: MEAN VALUATIONS OF BENEFITS BY BASE SIZE AND LOCATION

(dollars per month)

NAME OF BENEFIT	BASE SIZE AND LOCATION			
	Large Urban	Large Non-urban	Small Urban	Small Non-urban
Dependent Health	210	189	194	167
Personal Health	201	178	185	147
Sick Pay	270	259	264	194
Commissary	135	128	124	96
Base Exchange	115	111	95	80
Food	141	137	117	107
Housing	257	253	217	222
Recreation	76	76	57	49
Education	162	148	129	128
Life Insurance	114	112	95	89
Home Loan Ins.	115	114	96	75
Travel	100	98	68	77
Retirement	868	689	631	609
Leave	204	227	162	171
Tax Break	144	135	109	89
Training	0	112	-27	55

TABLE XX: MEAN VALUATIONS OF BENEFITS
BY BASE, BASIC QUESTIONNAIRE ONLY

(dollars per month)

NAME OF BENEFIT	BASE NUMBER (BASIC QUESTIONNAIRE ONLY)								
	1	2	6	7	11	12	13	14	15
Dependent Health	210	170	187	165	207	142	172	161	288
Personal Health	179	158	158	178	190	169	131	167	265
Sick Pay	221	255	236	263	239	354	186	204	256
Commissary	134	96	114	128	123	126	91	103	196
Base Exchange	108	76	106	99	100	77	76	85	171
Food	130	110	116	145	118	111	106	108	195
Housing	252	242	243	241	220	207	221	224	287
Recreation	67	52	59	94	57	59	40	59	113
Education	127	112	139	162	129	129	100	162	354
Life Insurance	102	69	97	92	91	111	70	112	171
Home Loan Ins.	95	60	105	105	98	86	66	85	213
Travel	81	37	80	96	67	71	71	83	230
Retirement	1122	803	603	591	657	541	705	490	683
Leave	214	145	209	210	155	187	164	179	286
Tax Break	132	96	113	158	116	84	67	116	187
Training	-125	87	117	98	-16	-65	160	-73	-15

TABLE XXI: MEAN VALUATIONS OF BENEFITS BY AIR FORCE CAREER LIKELIHOOD[a]

(dollars per month)

NAME OF BENEFIT	PROBABILITY OF REMAINING IN USAF TILL RETIREMENT										
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Dependent Health	193	172	195	144	208	209	124	234	235	206	192
Personal Health	183	174	185	123	208	183	152	251	205	211	177
Sick Pay	201	212	246	196	161	239	245	260	275	254	302
Commissary	131	118	125	85	108	136	118	121	139	116	122
Base Exchange	105	119	105	79	89	116	105	110	127	119	96
Food	136	135	121	109	108	140	117	149	142	122	127
Housing	233	227	260	185	217	238	245	226	256	260	263
Recreation	68	69	78	50	53	78	63	79	82	74	64
Education	160	164	216	135	188	215	163	154	135	132	106
Life Insurance	106	129	88	50	89	128	132	72	97	109	101
Home Loan Ins.	125	135	130	65	83	154	57	93	130	98	72
Travel	105	105	146	52	57	121	93	109	110	76	68
Retirement	351	320	369	234	302	573	476	771	642	767	1265
Leave	194	196	231	126	171	199	172	173	227	206	209
Tax Break	129	141	171	93	114	139	112	88	153	139	120
Training	-126	140	-111	-64	42	28	-131	102	132	-163	119

[a]Based on the responses to Question 17, Part I of the questionnaire, as shown, for example, in Appendix I.

TABLE XXII: MEAN VALUATIONS OF BENEFITS BY RESPONSE TO INDUCEMENTS[a]

(dollars per month)

NAME OF BENEFIT	INDUCEMENT AND RESPONSE									
	Cash		Promotion		Location		Assign-ment		Shorter Service	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Dependent Health	214	169	214	167	207	165	208	177	221	183
Personal Health	199	154	200	151	195	151	193	160	209	168
Sick Pay	237	187	246	172	235	175	236	179	240	209
Commissary	135	102	135	99	130	103	128	111	148	107
Base Exchange	121	90	123	82	118	84	115	93	133	95
Food	143	105	142	108	137	113	132	125	149	117
Housing	239	220	243	211	235	222	234	222	241	222
Recreation	75	62	76	57	73	64	72	65	83	61
Education	187	150	194	135	185	133	181	149	214	150
Life Insurance	122	87	121	88	114	89	107	109	135	94
Home Loan Ins.	137	109	132	110	131	101	117	137	141	113
Travel	111	87	113	80	109	78	105	93	127	86
Retirement	562	254	547	288	510	277	508	320	542	405
Leave	211	164	211	158	199	173	192	189	216	177
Tax Break	151	106	146	109	142	117	136	118	164	114
Training	8	-6	16	-1	17	-46	6	-9	26	-17

[a] Based on the responses to Question 18, Part I of the questionnaire, as shown, for example, in Appendix I.

TABLE XXII: MEAN VALUATIONS OF BENEFITS BY RESPONSE TO INDUCEMENTS (CONT.)

(dollars per month)

NAME OF BENEFIT	INDUCEMENT AND RESPONSE									
	Non-combatant		Living Conditions		Discipline		Recreation		Combination	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Dependent Health	234	179	228	157	231	176	240	168	193	206
Personal Health	220	163	207	154	215	164	222	155	182	195
Sick Pay	261	200	250	182	261	192	266	186	220	217
Commissary	153	107	141	97	151	101	156	98	121	140
Base Exchange	142	93	129	83	139	89	148	81	111	106
Food	151	119	146	109	153	114	164	104	131	134
Housing	238	225	241	217	247	219	254	214	232	232
Recreation	91	59	84	53	87	57	95	52	71	73
Education	231	145	208	129	230	134	239	126	175	179
Life Insurance	134	95	125	88	141	88	142	86	108	117
Home Loan Ins.	149	110	142	100	162	95	164	95	120	144
Travel	129	87	118	81	132	81	135	77	102	105
Retirement	527	409	533	348	521	399	540	388	442	352
Leave	211	179	207	171	218	169	229	162	189	202
Tax Break	173	112	148	115	170	111	173	101	132	137
Training	-73	28	6	-16	13	-7	27	-24	4	-72

TABLE XXIII: MEAN VALUATIONS OF BENEFITS BY DRAFT INFLUENCE[a]

(dollars per month)

NAME OF BENEFIT	RESPONSE TO DRAFT QUESTION				
	Yes	Probably	Probably not	No	Does not apply
Dependent Health	221	205	163	156	196
Personal Health	213	178	153	148	183
Sick Pay	299	268	214	195	226
Commissary	143	112	94	112	128
Base Exchange	125	95	76	80	115
Food	146	122	104	113	139
Housing	264	245	242	216	237
Recreation	79	67	52	48	76
Education	170	125	106	120	177
Life Insurance	132	98	80	84	106
Home Loan Ins.	128	102	52	79	119
Travel	109	81	57	71	106
Retirement	800	836	811	681	645
Leave	229	216	162	174	179
Tax Break	146	121	104	108	134
Training	11	48	68	83	17

[a]Based on the responses to Question 19, Part I of the questionnaire, as shown, for example, in Appendix I.

TABLE XXIV: MEAN VALUATIONS OF BENEFITS BY BENEFIT UNDERSTANDING[a]

(dollars per month)

NAME OF BENEFIT	RESPONSE TO BENEFIT UNDERSTANDING QUESTION[b]			
	No idea	Some idea	Good idea	Compiete understanding
Dependent Health	198	220	184	201
Personal Health	213	218	190	171
Sick Pay	250	246	239	278
Commissary	215	184	124	119
Base Exchange	115	149	112	100
Food	168	175	127	123
Housing	248	265	241	247
Recreation	107	77	61	69
Education	156	193	133	140
Life Insurance	134	125	103	104
Home Loan Ins.	129	98	97	101
Travel	155	87	83	89
Retirement	744	462	763	1067
Leave	252	245	213	191
Tax Break	134	148	116	128

[a]Based on the responses to Question 20, Part I of the questionnaire, as shown, for example, in Appendix I.

[b]This table, and Tables XXV and XXVI, include "uncorrected" responses to the validating questionnaire, i.e., these responses were not corrected to the midpoint of the response interval. The errors in these tables are so small, however—as experience with the first 19 tables shows—that they may safely be ignored. The means shown are too high by something of the order of $0-5.

TABLE XXV: MEAN VALUATIONS OF BENEFITS BY AIR FORCE/CIVILIAN COMPARISON[a]

(dollars per month)

NAME OF BENEFIT	RESPONSE TO USAF-CIVILIAN COMPARISON[b]				
	USAF far better	USAF better	About same	USAF worse	USAF far worse
Dependent Health	220	189	184	146	199
Personal Health	191	186	175	157	157
Sick Pay	278	239	232	238	230
Food	191	174	118	139	143
Housing	293	269	235	258	241
Recreation	91	73	67	63	82
Education	190	143	126	118	119
Life Insurance	117	111	102	114	92
Home Loan Ins.	166	112	81	69	45
Travel	124	86	74	59	86
Retirement	890	721	644	762	297
Leave	206	204	196	209	197
Tax Break	140	135	120	188	37

[a]Based on the responses to Question 21, Part I of the questionnaire, as shown, for example, in Appendix I.

[b]See footnote at Table XXIV.

TABLE XXVI: MEAN VALUATIONS OF BENEFITS BY PROBABILITY OF USE[a]

(dollars per month)

NAME OF BENEFIT	PROBABILITY OF USE[b]				
	Very likely	Likely	Unlikely	Very unlikely	No idea
Dependent Health	207	206	169	160	203
Personal Health	198	172	148	200	133
Sick Pay	294	244	204	187	224
Commissary	124	143	88	86	271
Base Exchange	105	120	98	65	153
Food	131	146	103	156	123
Housing	249	245	253	235	236
Recreation	84	71	58	39	36
Education	178	150	100	50	93
Life Insurance	99	135	123	140	136
Home Loan Ins.	128	110	87	62	118
Travel	120	93	50	42	93
Retirement	1119	528	417	322	248
Leave	203	205	151	117	147
Tax Break	137	141	115	88	81

[a]Based on the responses to the question shown, for example, as Question 23, Part II of the basic questionnaire (Appendix II).

[b] See footnote at Table XXIV.

TABLE XXVII: FREQUENCY DISTRIBUTION OF RESPONSES TO "AIR FORCE CAREER LIKELIHOOD" QUESTION[a]

Probability of remaining in USAF till retirement	Number of reponses	Per cent
0.0	642	17.6
0.1	357	9.8
0.2	94	2.6
0.3	79	2.2
0.4	84	2.3
0.5	662	18.1
0.6	56	1.5
0.7	79	2.2
0.8	117	3.2
0.9	197	5.4
1.0	1280	35.1
Total	3647	100.0

[a]Based on the responses to Question 17, Part I of the questionnaire, as shown, for example, in Appendix I.

TABLE XXVIII: FREQUENCY DISTRIBUTION OF RESPONSES TO "INDUCEMENTS" QUESTION[a]

Inducement	Number yes	Per cent yes
Cash	1406	71.0
Promotion	1329	68.0
Location	1520	77.0
Assignment	1439	73.8
Shorter Service	768	40.7
Non-combatant	650	34.7
Living conditions	1177	61.6
Discipline	820	43.2
Recreation	889	46.9
Combination	1595	81.0

[a]Based on the responses to Question 18, Part I of the questionnaire, as shown, for example, in Appendix I. Includes only those who responded also to Question 17.

TABLE XXIX: FREQUENCY DISTRIBUTION OF RESPONSES TO DRAFT INFLUENCE QUESTION[a]

Response	Number of responses	Per cent
Yes	1415	39.3
Probably	490	13.6
Probably not	437	12.1
No	528	14.7
Does not apply	731	20.3
Total	3601	100.0

[a]Based on the responses to Question 19, Part I of the questionnaire, as shown, for example, in Appendix I. Includes only those who responded also to Question 17.

TABLE XXX: FREQUENCY DISTRIBUTION OF RESPONSES TO "BENEFIT UNDERSTANDING" QUESTION[a]

NAME OF BENEFIT	NUMBER OF RESPONSES			
	No idea	Some idea	Good idea	Complete understanding
Dependent Health	194	751	1243	633
Personal Health	58	363	1288	1180
Sick Pay	182	495	1034	1103
Commissary	73	185	1001	2012
Base Exchange	43	214	1039	1973
Food	107	427	1120	1563
Housing	150	496	1075	1520
Recreation	196	769	1283	908
Education	52	718	1362	759
Life Insurance	111	638	1209	1037
Home Loan Ins.	557	796	583	379
Travel	290	830	1088	762
Retirement	150	680	1091	671
Leave	39	188	893	1725
Tax Break	664	580	715	569

[a]Based on the responses to Question 20, Part I of the questionnaire, as shown, for example, in Appendix I. Includes only those who responded to the respective parts of the monetary evaluation question (Question 24, Part II).

TABLE XXXI: FREQUENCY DISTRIBUTION OF RESPONSES TO "AIR FORCE-CIVILIAN COMPARISON" QUESTION[a]

NAME OF BENEFIT	NUMBER OF RESPONSES				
	USAF far better	USAF better	About same	USAF worse	USAF far worse
Dependent Health	925	1053	459	190	58
Personal Health	1392	998	384	81	25
Sick Pay	1285	977	432	52	10
Food	143	296	1844	595	297
Housing	108	250	1337	1047	434
Recreation	233	804	1325	532	191
Education	818	1221	594	174	57
Life Insurance	692	1098	996	152	38
Home Loan Ins.	376	925	822	113	47
Travel	862	1416	509	115	45
Retirement	926	1099	437	76	24
Leave	1054	1206	503	61	19
Tax Break	386	1172	830	66	27

[a]Based on the responses to Question 21, Part I of the questionnaire, as shown, for example, in Appendix I. Includes only those who responded also to the respective parts of the monetary evaluation question (Question 24, Part II).

TABLE XXXII: FREQUENCY DISTRIBUTION OF RESPONSES TO "PROBABILITY OF USE" QUESTION[a]

NAME OF BENEFIT	NUMBER OF RESPONSES				
	Very likely	Likely	Unlikely	Very unlikely	No idea
Dependent Health	1426	707	279	343	52
Personal Health	1671	973	164	51	22
Sick Pay	1252	947	484	105	31
Commissary	2477	610	115	47	20
Base Exchange	2587	579	64	27	14
Food	2533	523	99	47	15
Housing	2288	587	201	143	25
Recreation	1045	1289	534	263	30
Education	1165	1238	362	122	9
Life Insurance	2148	622	135	69	23
Home Loan Ins.	703	866	476	196	75
Travel	1112	1133	500	170	51
Retirement	1252	545	347	394	42
Leave	2437	398	20	9	9
Tax Break	1502	560	148	72	241

[a]Based on the responses to the question shown, for example, as Question 23, Part II of the basic questionnaire (Appendix II). Includes only those who responded also to the respective parts of the monetary evaluation question (Question 24, Part II).

TABLE XXXIII: FREQUENCY DISTRIBUTION OF RESPONSES TO "MOST IMPORTANT FACTORS" QUESTION[a]

NAME OF FACTOR	NUMBER OF RESPONSES			
	1st place	2nd place	3rd place	Total
Dependent Health	325	302	165	792
Personal Health	116	273	198	587
Sick Pay	64	112	148	324
Food	10	17	21	48
Housing	45	76	83	204
Recreation	3	9	17	29
Education	218	215	190	623
Life Insurance	4	13	14	31
Home Loan Ins.	17	35	28	80
Travel	20	60	87	167
Retirement	554	296	277	1127
Leave	13	59	96	168
Tax Break	2	15	22	39
Value, all non-mon. ben.	21	57	88	166
Money earned	366	287	226	879
Total, pay and benefits	169	184	187	540
Security	240	205	258	703
Hours of work	12	37	45	94
Opp. for advancement	181	220	199	600
Physical safety	4	17	18	39
Respect from public	22	45	62	129
Personal freedom	316	165	179	660
Job satisfaction	426	299	245	970
Service to others	36	70	62	168
Future career prep.	87	116	139	342
Achievement recognition	16	78	85	179
Supervision, guidance	14	27	22	63
Family, social life	109	117	179	405
Family believes future	64	60	103	227

[a] Based on the responses to Question 22, Part I of the questionnaire, as shown, for example, in Appendix I.

TABLE XXXIV: AIR FORCE-CIVILIAN FEATURE SCORE BY LENGTH OF SERVICE[a] AND BASE GROUP[b]

LENGTH OF SERVICE DECILE	BASE GROUP									
	Large urban				Large non-urban			Small urban	Small non-u.	Lack-land
	Basic	Valid.	Educ.	Sequ.	Basic	Valid.	Sequ.	Basic	Basic	Basic
1	-	-	-	-	33.9	-	36.9	-	-	29.9
2	39.3	39.3	38.9	33.6	35.5	38.9	35.0	37.9	37.9	-
3	39.2	43.7	41.2	37.5	40.5	44.4	36.7	38.6	41.5	-
4	40.9	40.0	45.0	42.3	42.1	43.7	42.1	40.9	40.5	-
5	41.4	41.9	46.3	41.1	39.3	43.5	43.7	38.8	42.9	-
6	38.4	38.7	38.4	38.3	37.1	41.5	38.7	38.8	39.3	-
7	36.9	37.2	37.7	35.4	36.4	38.1	36.2	37.5	40.0	-
8	36.8	35.7	40.5	38.8	38.5	35.8	36.3	39.8	37.4	-
9	37.2	38.3	37.4	35.8	37.3	38.0	34.1	35.7	36.9	-
10	35.4	31.5	35.0	34.5	32.7	32.9	35.5	35.1	35.1	-

[a]See Table IV for length groupings.

[b]Score based on last 13 responses to Question 21, Appendix 1. "Far better" was scored 1, "better" was scored 2, "same" was scored 3, "worse" was scored 4, and "far worse" 5, and the sum taken. Therefore, maximum score is 65. Cells with fewer than 20 responses are not shown.

TABLE XXXV: AIR FORCE-CIVILIAN FEATURE SCORE BY DRAFT RESPONSE AND BASE GROUP[a]

DRAFT RESPONSE	BASE GROUP									
	Large urban				Large non-urban			Small urban	Small non-u.	Lack-land
	Basic	Valid.	Educ.	Sequ.	Basic	Valid.	Sequ.	Basic	Basic	Basic
Yes	36.3	35.4	37.6	33.8	35.6	35.2	33.0	35.8	37.0	29.4
Probably	36.5	37.9	40.3	36.7	37.7	39.8	35.4	38.1	37.5	-
Probably not	39.5	42.6	40.6	39.2	37.9	39.7	39.8	40.8	41.2	-
No	44.1	44.6	45.1	44.2	42.9	46.2	44.4	45.6	45.8	-
Does not apply	37.3	41.0	38.8	37.7	33.3	40.7	37.1	37.5	38.5	30.8

[a]Score defined as in Table XXXIV.

TABLE XXXVI: FREQUENCY DISTRIBUTION OF ARMED FORCES RELATIVES BY PROBABILITY OF REMAINING IN THE AIR FORCE

ARMED FORCES RELATIVES	PROBABILITY OF USAF CAREER						
	0.0	0.1	0.2 to 0.4	0.5	0.6 to 0.8	0.9	1.0
Parents & siblings	100	47	37	109	43	32	154
Parents, no siblings	218	116	107	230	88	51	179
Siblings, no parents	72	40	17	98	43	24	398
Other relatives	66	51	27	70	33	31	186
None	40	15	20	45	19	23	138

TABLE XXXVII: FREQUENCY OF DISTRIBUTION OF DRAFT RESPONSES BY PROBABILITY OF REMAINING IN THE AIR FORCE

DRAFT RESPONSE	PROBABILITY OF USAF CAREER						
	0.0	0.1	0.2 to 0.4	0.5	0.6 to 0.8	0.9	1.0
Yes	89	78	67	222	97	79	539
Probably	39	34	34	82	39	19	155
Probably not	55	36	33	58	32	24	146
No	210	42	29	48	13	16	73
Does not apply	98	78	43	142	43	23	144

TABLE XXXVIII: FREQUENCY DISTRIBUTION OF INDUCEMENT RESPONSES BY PROBABILITY OF REMAINING IN THE AIR FORCE

INDUCEMENT	RESPONSE	PROBABILITY OF USAF CAREER						
		0.0	0.1	0.2 to 0.4	0.5	0.6 to 0.8	0.9	1.0[a]
Cash	Yes	179	161	135	421	170	103	-
	No	258	76	40	59	16	16	-
Promotion	Yes	154	136	121	413	165	108	-
	No	276	93	54	60	20	12	-
Location	Yes	217	188	144	442	172	103	-
	No	219	47	33	38	18	15	-
Assignment	Yes	196	160	146	422	172	106	-
	No	231	71	31	52	.5	10	-
Shorter service	Yes	141	108	81	199	58	31	-
	No	283	121	92	247	116	77	-
Non-combatant	Yes	105	81	55	199	58	23	-
	No	315	146	117	249	115	84	-
Living conditions	Yes	164	133	107	334	132	80	-
	No	261	97	69	127	46	31	-
Discipline	Yes	158	111	81	228	64	31	-
	No	268	121	94	223	113	78	-
Recreation	Yes	109	98	72	276	88	62	-
	No	312	129	103	181	88	50	-
Combination	Yes	244	198	162	446	182	107	-
	No	183	38	19	25	12	11	-

[a]Directed not to respond.

TABLE XXXIX: PROBABILITY OF REMAINING IN THE AIR FORCE, BY RESPONSES TO "ARMED FORCES RELATIVES" AND "DRAFT" QUESTIONS

ARMED FORCES RELATIVES	DRAFT				
	Yes	Probably	Probably not	No	Does not apply
Parents and siblings	0.64	0.58	0.51	0.25	0.48
Parents, no siblings	0.57	0.50	0.47	0.16	0.38
Siblings, no parents	0.80	0.80	0.74	0.48	0.62
Other relatives	0.73	0.63	0.61	0.34	0.55
None	0.76	0.68	0.78	0.46	0.60

TABLE XL: FREQUENCY DISTRIBUTION OF FEATURES IDENTIFIED AS MOST IMPORTANT, BY LENGTH OF SERVICE DECILE[a]

AIR FORCE-CIVILIAN FEATURE	LENGTH OF SERVICE DECILE									
	1	2	3	4	5	6	7	8	9	10
Retirement	10	-	12	-	-	26	80	119	133	142
Job satisfaction	36	37	55	66	59	75	69	55	37	50
Cash	45	45	51	47	34	59	42	37	37	28
Dependent health	32	48	29	31	16	27	30	34	40	38
Personal freedom	13	61	65	65	61	38	22	-	10	-
Security	16	17	17	14	25	21	29	27	46	30
Educational opportunity	51	46	31	23	24	16	-	-	-	-
Advancement opportunity	20	15	17	15	20	29	22	21	13	12
Cash plus benefits	19	18	20	24	17	17	25	10	20	14

[a]See Table IV for length groupings. Cells with fewer than 10 responses are not shown.

TABLE XLI: FREQUENCY DISTRIBUTION OF RESPONSES TO AIR FORCE-CIVILIAN COMPARISON OF CASH EARNED, BY PROBABILITY OF REMAINING IN THE AIR FORCE

AIR FORCE-CIVILIAN COMPARISON OF CASH EARNED	PROBABILITY OF USAF CAREER						
	0.0	0.1	0.2 to 0.4	0.5	0.6 to 0.8	0.9	1.0
USAF Far Better	15	20	11	50	17	12	112
USAF Better	62	49	35	125	35	35	292
Same	95	79	42	189	64	55	466
USAF Worse	187	95	87	[illegible]	84	60	237
USAF Far Worse	152	41	35	36	25	10	34

TABLE XLII: FREQUENCY DISTRIBUTION OF RESPONSES TO AIR FORCE-CIVILIAN COMPARISON OF "CASH PLUS OTHER BENEFITS," BY PROBABILITY OF REMAINING IN THE AIR FORCE

AIR FORCE-CIVILIAN COMPARISON OF TOTAL CASH PLUS BENEFIT	PROBABILITY OF USAF CAREER						
	0.0	0.1	0.2 to 0.4	0.5	0.6 to 0.8	0.9	1.0
USAF Far Better	29	31	20	104	34	31	212
USAF Better	109	96	66	213	91	68	493
Same	139	89	64	184	61	49	323
USAF Worse	148	55	51	53	33	23	100
USAF Far Worse	88	10	8	5	6	2	11

TABLE XLIII: FREQUENCY DISTRIBUTION OF "P" AND BLANK RESPONSES TO NON-MONETARY BENEFIT EVALUATION QUESTIONS

(per cent)

NAME OF BENEFIT	"P" Responses	Blank Responses	Good Responses	Responses Discarded (>$2,500)
Dependent Health	10.8	11.3	76.9	1.1
Personal Health	12.2	8.1	78.5	1.2
Sick Pay	12.4	10.2	76.7	0.7
Commissary	3.3	7.5	88.9	0.4
Base Exchange	3.1	7.8	88.9	0.2
Food	3.0	9.4	87.4	0.2
Housing	3.8	7.6	88.3	0.4
Recreation	2.7	11.3	85.8	0.2
Education	7.7	12.7	78.7	0.8
Life Insurance	8.2	9.9	81.5	0.4
Home Loan Ins.	5.0	31.5	63.2	0.4
Travel	4.5	14.3	80.8	0.3
Retirement	16.1	13.5	70.5	[a]
Leave	10.3	10.9	77.9	0.9
Tax Break	5.0	25.8	68.9	0.4

[a]Responses over $2,500 were not discarded for this benefit.

TABLE XLIV: FREQUENCY DISTRIBUTION OF "P" AND BLANK RESPONSES TO NON-MONETARY BENEFIT EVALUATION QUESTIONS BY BENEFIT AND QUESTIONNAIRE TYPE

(per cent)

NAME OF BENEFIT	Basic		Validating		Educational		Sequential		Lackland	
	P	Blank	P	Blank	P	Blank	P	Blank	P	Blank
Dependent Health	10.6	13.5	0.8	10.0	14.3	7.6	11.2	7.1	28.5	3.0
Personal Health	12.4	10.1	1.0	6.3	14.3	5.2	13.2	3.7	28.9	3.4
Sick Pay	13.1	13.1	0.8	7.6	12.9	6.2	14.7	6.6	25.1	2.6
Commissary	2.8	8.9	0.6	6.9	3.3	4.8	3.5	4.2	11.5	4.3
Base Exchange	2.8	9.6	0.2	7.5	2.4	5.7	3.2	3.9	11.9	1.7
Food	2.5	11.9	0.2	7.1	2.9	5.2	3.0	5.6	11.1	3.0
Housing	3.1	9.2	0.4	8.8	3.8	3.8	3.9	3.9	13.6	1.7
Recreation	2.2	13.8	0.2	12.0	3.3	7.1	2.4	6.4	9.4	1.3
Education	6.8	15.9	1.2	10.2	7.1	9.5	7.8	7.6	27.7	4.3
Life Insurance	7.5	12.1	1.8	7.3	5.7	8.6	3.6	5.9	26.8	4.7
Home Loan Ins.	4.5	33.5	1.2	24.9	5.2	23.8	4.6	32.2	15.3	12.8
Travel	4.0	17.4	0.8	10.8	7.1	11.0	3.9	11.3	14.9	3.8
Retirement	16.3	15.9	4.5	11.0	17.6	11.0	18.7	9.6	28.9	6.8
Leave	10.4	12.9	1.6	8.8	9.0	8.6	11.5	7.4	23.8	5.5
Tax Break	4.6	28.6	1.4	19.6	5.7	18.1	4.4	25.1	14.0	20.4

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